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BOSTON HARBOR: THE ANATOMY OF A COURT-RUN CLEANUP

Andrew Thomas Savage*

*We still have a ways to go before its Aruba.*¹

*Love that dirty water, Boston you're my home.*²

I. INTRODUCTION

Boston Harbor is one of New England's greatest natural resources. As the largest seaport in New England, Boston Harbor is a center for the East's shipping and shipbuilding industries.³ The Harbor is also home to extensive fish and shellfish markets.⁴ In addition, Boston Harbor serves as a recreational center to the residents of Massachusetts and to tourists.⁵ In the summer, hundreds of thousands of people flock to the more than thirty beaches that line the coastal and island shores of Boston Harbor.⁶ Yet despite the importance of the continued vitality of Boston Harbor to New England, and especially Massachusetts, by 1988 the continuous pollution of Boston Harbor had earned it the infamous label of "America's Dirtiest Harbor."⁷

In 1985, under pressure from the courts, the Massachusetts Legislature created the Massachusetts Water Resources Authority

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¹ Scott Allen, *Boston Harbor's Waters Have Started To Heal; Cleanup Helping To Shed 'Dirtiest' Label*, BOSTON GLOBE, Sept. 6, 1992 (Metro/Region), at 1.

² THE STANDELLS, DIRTY WATER (circa 1965).

³ David Doneski, Comment, *Cleaning Up Boston Harbor: Fact or Fiction?*, 12 B.C. ENVTL. AFF. L. REV. 559, 559 (1985).

⁴ Charles M. Haar, *Boston Harbor: A Case Study*, 19 B.C. ENVTL. AFF. L. REV. 641, 642 (1992).

⁵ Doneski, *supra* note 3, at 559.

⁶ *Id.*

⁷ Jeff Hecht, *Raising a Stink in Boston*, NEW SCIENTIST, Dec. 5, 1992, at 32.

(MWRA).⁸ The MWRA, under court supervision, was placed in charge of cleaning up Boston Harbor.⁹ That clean-up project commenced in 1985 and is still ongoing.¹⁰ As the cleanup of Boston Harbor has progressed over the past nine years, the Harbor has seen improvements in both water quality and the health of the aquatic life that resides in the Harbor.¹¹

This progress has not been unimpeded however. Almost every major component of the clean-up project has been challenged by either environmental groups, local citizens, and/or the state and federal government.¹² At the center of each of these controversies has been Judge A. David Mazzone, the United States District Court Judge in charge of overseeing the cleanup.¹³ In light of the history of the pollution of Boston Harbor and the political and economic pressures on the MWRA, Judge Mazzone's role in the cleanup of the Harbor has been essential. Indeed, absent Judge Mazzone's involvement in the Boston Harbor Cleanup, it is unlikely that the cleanup would have progressed as it has.

This Comment will chronicle the progress of each of the major components of the Boston Harbor Cleanup. The reasons for the successes and failures of each project will be explored. The role of the court and Judge Mazzone will also be explored in an attempt to determine what the benefits and drawbacks are to a court-run environmental cleanup. Section II provides a history of the pollution problem in Boston Harbor. Section III looks at the Metropolitan Sewerage System and its contribution to the pollution of Boston Harbor. Section IV explores the various components of the cleanup and discusses the challenges that each has faced. Section V discusses how the cleanup is being funded and the political repercussions of its cost. Finally, Section VI evaluates the roles of the major parties involved in the cleanup, discusses how the court may have affected the significance of these players, and looks at the future of the Boston Harbor Cleanup.

II. HISTORY OF BOSTON HARBOR POLLUTION

Bostonians first began polluting their harbor in 1773 when they threw a shipment of tea into Boston Harbor in protest of British

⁸ 1984 Mass. Acts 372, § 3(a).

⁹ Doneski, *supra* note 3, at 608.

¹⁰ Hecht, *supra* note 7, at 32.

¹¹ See Scott Allen, *Boston Harbor's Waters Have Started To Heal; Cleanup Helping to Shed "Dirtiest" Label*, BOSTON GLOBE, Sept. 6, 1992 (Metro/Region), at 1.

¹² See *infra* notes 127, 167, and 284 and accompanying text.

¹³ See *infra* notes 127, 167, and 284 and accompanying text.

import taxes. Since then Boston Harbor has been treated as every Bostonian's collective toilet. In 1876, Boston's first sewer system was constructed.¹⁴ That system collected sewage and storm run-off at Deer, Nut, and Moon Islands and then discharged that raw, untreated waste into the Harbor with the outgoing tide.¹⁵ The novelty of a system taking advantage of the outgoing tide won Boston an international design award when it was first introduced.¹⁶ Unfortunately, a substantial portion of the waste discharged on the outgoing tide simply returned to pollute the Harbor with the next incoming tide.¹⁷

It was not until 1952 that Boston began to treat the sewage it poured daily into Boston Harbor.¹⁸ The city of Boston constructed primary treatment plants on Nut Island in 1952 and on Deer Island in 1968 which were designed to remove the solid wastes from the sewage prior to the discharge of the liquid waste, called effluent, into the Harbor.¹⁹ This process, however, did little to reduce the amount of wastes being discharged into Boston Harbor.²⁰ The solid wastes, known as "sludge," that were initially removed by primary treatment were later discharged directly into the Harbor after only a brief period of additional decomposition treatment.²¹

In 1972, Congress amended the Federal Water Pollution Control Act of 1948 (FWPCA),²² requiring, among other things, that all publicly owned treatment works (POTWs) that dump sewage into waters of the United States install both primary and secondary treatment equipment by July, 1977.²³ Boston was automatically in violation of the

¹⁴ Hecht, *supra* note 7, at 32.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.* at 33.

¹⁹ *Id.*

²⁰ *See id.*

²¹ *Id.* "Sludge" discharges into Boston Harbor continued until December 26th, 1991. *Boston Ends 40-Year Practice of Dumping Sludge into Harbor*, SLUDGE, Jan. 1, 1992, at 1, 3. The sludge is placed in digestion tanks in which bacteria is used to speed up the decomposition of the wastes. Doneski, *supra* note 3, at 570.

²² 33 U.S.C.A. §§ 1251-1387 (1982). These amendments are commonly referred to as the Clean Water Act of 1972.

²³ 33 U.S.C. § 1311(b)(1)(B) (1976). In 1977, Congress pushed back the deadline for secondary treatment to July 1, 1983 for municipalities who, because of inadequate funding, had been unable to meet the initial deadline. Pub. L. No. 95-217, § 45, 91 Stat. 1585; H.R. REP. No. 270, 97th Cong., 1st Sess. 2, reprinted in 1981 U.S.C.C.A.N. 2629, 2630; S. REP. No. 370, 95th Cong., 1st Sess. 1-5, reprinted in 1977 U.S.C.C.A.N. 4326, 4327-31. Many municipalities had inadequate funding because in the first few years of the program federal grants were held up by the executive, the 1972 amendments having been passed over President Nixon's veto. Doneski, *supra* note 3, at 587-88. In 1981, the deadline for secondary treatment was extended again, this

secondary treatment requirement, as were many other municipalities, including Los Angeles, Seattle, and Miami.²⁴ However, while these other cities took steps to update their sewer systems to comply with the 1972 amendments, Boston demonstrated its apathy toward the problems facing its Harbor.²⁵

Instead of taking immediate steps to implement secondary treatment, Boston's primary response to the requirements of the 1972 amendments was to commission a study of the Metropolitan Sewerage System (MSS).²⁶ That study, the Boston Harbor Eastern Massachusetts Metropolitan Area Wastewater Management and Engineering Study (EMMA), was conducted by the Metropolitan District Commission (MDC) and the United States Army Corps of Engineers.²⁷ It was not completed until 1976, four years after the 1972 amendments.²⁸ When the EMMA study was finally published, it made a number of recommendations, including the implementation of secondary treatment at both the Deer Island and Nut Island treatment plants in compliance with the Clean Water Act (CWA).²⁹ The magnitude of the potential environmental effects of the proposed improvements to the MSS required that the United States Environmental Protection Agency (EPA) prepare an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA).³⁰ While

time until July 1, 1988. *Id.* This additional extension was in response to the Municipal Waste Water Treatment Construction Grant Amendments, which severely reduced federal funding for these projects. *Id.*

²⁴ Hecht, *supra* note 7, at 33.

²⁵ *Id.*

²⁶ Doneski, *supra* note 3, at 595-96.

²⁷ *Id.* The Metropolitan District Commission controlled the operation of the Metropolitan Sewer System until 1985. The MDC is overseen by the Massachusetts Executive Office of Environmental Affairs and is also charged with the operation and maintenance of Greater Boston's parks and other recreational facilities. *Id.* at 562.

²⁸ *Id.* at 596.

²⁹ *Id.* The EMMA study also recommended improvements and repairs at the primary treatment plants on Deer Island and Nut Island, incineration of all "Sludge" produced by treatment at Deer Island, and corrective measures to reduce the overflow problems with Boston's combined sewer systems. *Id.*

³⁰ *Id.* at 597. The National Environmental Policy Act generally requires federal agencies to evaluate the potential environmental impact of proposed agency projects. National Environmental Policy Act, § 102, 42 U.S.C. § 4332 (1988). While most EPA actions do not require an Environmental Impact Statement because EPA's goals are consistent with the mandate of NEPA, EPA is required to prepare EISs prior to issuing new NPDES permits and granting federal aid for POTW construction projects. Doneski, *supra* note 3, at 589. The proposed projects set forth in the EMMA study would have been eligible for some federal funding and thus required an EIS. *Id.*

Boston was waiting for EPA to complete that EIS, Congress passed the 1977 amendments to the Federal Water Pollution Control Act.³¹

The 1977 amendments to the FWPCA included a "waiver" provision that allowed municipalities discharging into marine waters to apply for an exemption to the secondary treatment requirement set out in the 1972 amendments to the FWPCA.³² So instead of going forward with the creation of secondary treatment facilities pursuant to the recommendations of EMMA, then Massachusetts Governor Michael Dukakis chose to apply for a waiver exempting the MSS from secondary treatment requirements.³³

The delay in the commencement of the cleanup of Boston Harbor proved disastrous.³⁴ EPA ultimately rejected Boston's secondary treatment waiver application and, to make matters worse, while Boston awaited the waiver decision, it missed the opportunity to have seventy-five percent of the costs of the cleanup of Boston Harbor paid for by the federal government.³⁵ As a result, the communities serviced

³¹ *Id.* at 596.

³² 33 U.S.C. § 1311(h) (1976 & Supp. II 1978); Doneski, *supra* note 3, at 587. To qualify for a waiver for secondary treatment the municipality is required to demonstrate that:

(1) There is an applicable water quality standard specific to the pollutant for which modification is requested; (2) Such modified requirements will not interfere with the attainment of that water quality which assures protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, and allows recreational activities, in and on the water; (3) The applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota to the extent practicable; (4) Such modified requirements will not result in any additional requirements on any other point or non point source; (5) All applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced; (6) To the extent practicable, the applicant has established a schedule of activities to eliminate the entrance of toxic pollutants from non industrial sources into such treatment works; (7) There will be no new or substantially increased discharges from the point source of the pollutant to which the modification applies above the volume of discharge specified in the permit.

33 U.S.C. § 1311(h) (1982).

³³ Conrad B. MacKerron, *Remedies For Boston Harbor's Ills*, CHEMICAL WEEK, Sept. 21, 1988, at 34. In 1972, Governor Francis Sargeant had committed himself to the construction of a secondary treatment plant by 1980, but in 1974, when Governor Michael Dukakis took office, he maintained that Boston Harbor could be cleaned up at less expense through enhanced primary treatment facilities. *Id.*

³⁴ See Hecht, *supra* note 7, at 33.

³⁵ *Id.* The 1972 amendments to the FWPCA had provided for substantial federal funding for POTW construction projects. 33 U.S.C. § 1281 (1976); H.R. REP. NO. 270, *supra* note 23, at 2, reprinted in 1981 U.S.C.C.A.N. at 2630. However, in 1981, Congress passed the Municipal Waste Water Treatment Construction Grant Amendments which allowed for substantial cutbacks in the federal grant program. Pub. L. No. 97-117, 95 Stat. 1622. Michael Deland, former head of the United States Environmental Protection Agency's Region I office, located in Boston, referred to Dukakis's delay in the commencement of the Harbor Cleanup as "the most expensive

by the MSS were faced with shouldering almost ninety-two percent of the cost of the cleanup.³⁶ The overwhelming commitment of resources necessary for the commencement of the cleanup resulted in even more delays.³⁷ Finally, in 1982 and 1983, three lawsuits were filed against the MDC, forcing the cleanup of Boston Harbor to begin.³⁸

Boston's southern neighbor, the city of Quincy, filed the first lawsuit in December of 1982, charging the MDC with violations of the Massachusetts Clean Waters Act and common law nuisance.³⁹ In June of 1983, both the Justice Department, on behalf of EPA, and the Conservation Law Foundation (CLF) also filed suits against the MDC.⁴⁰ EPA charged the MDC with violating its National Pollutant Discharge Elimination System (NPDES) permit by failing to monitor discharges from Nut Island.⁴¹ The CLF sought a court-mandated cleanup of the Harbor.⁴² In February of 1984, EPA settled its lawsuit with the MDC and, one month later, the CLF's lawsuit was suspended awaiting future developments in *City of Quincy v. Metropolitan District Commission*.⁴³

In *City of Quincy v. Metropolitan District Commission*, Quincy claimed that the discharge of wastes into Boston Harbor was polluting

public policy mistake in the history of New England." Larry Tye, *Dukakis Nails Bush for Politicking on Harbor Then Ignoring It*, BOSTON GLOBE, Feb. 1, 1990 (Metro/Region), at 25.

³⁶ *Boston Harbor: Ratepayers Stage Another Tea Party*, Greenwire (Clean Water), May 17, 1993.

³⁷ See, e.g., Hecht, *supra* note 7, at 33.

³⁸ Complaint, *City of Quincy v. Metropolitan Dist. Comm'n*, Civ. No. 138,477 (Mass. Super. Ct., Norfolk County, filed Dec. 17, 1982); *United States v. Metropolitan Dist. Comm'n*, No. 83-1572 (D. Mass. filed June 3, 1983); *Conservation Law Found. v. Metropolitan Dist. Comm'n*, No. 83-1614 (D. Mass. filed June 7, 1983); Doneski, *supra* note 3, at 606.

³⁹ MASS. GEN. LAWS ANN. ch. 92, § 1 (West 1969); Complaint, *City of Quincy v. Metropolitan Dist. Comm'n*, Civ. No. 138,477 (Mass. Super. Ct., Norfolk County, filed Dec. 17, 1982); Haar, *supra* note 4, at 643. Quincy also named the Boston Water and Sewer Commission (BWSC), which is in charge of operations at Moon Island. Doneski, *supra* note 3, at 563. The BWSC was prohibited from treating sewage at Moon Island absent permission from the MDC. *Id.*

⁴⁰ *United States v. Metropolitan Dist. Comm'n*, No. 83-1572 (D. Mass. filed June 3, 1983); *Conservation Law Found. v. Metropolitan Dist. Comm'n*, No. 83-1614 (D. Mass. filed June 7, 1983); Doneski, *supra* note 3, at 606.

⁴¹ *United States v. Metropolitan Dist. Comm'n*, No. 83-1572 (D. Mass. filed June 3, 1983). The National Pollutant Discharge Elimination System requires that all POTWs obtain an NPDES permit from EPA prior to the discharge of any pollutant into the waters of the United States. 33 U.S.C. § 1311(a) (1982); Doneski, *supra* note 3, at 585.

⁴² *Conservation Law Found. v. Metropolitan Dist. Comm'n*, No. 83-1614 (D. Mass. filed June 7, 1983); Doneski, *supra* note 3, at 606.

⁴³ *Conservation Law Found. v. Metropolitan Dist. Comm'n*, No. 83-1614 (D. Mass. filed June 7, 1983); Doneski, *supra* note 3, at 606.

Quincy Bay.⁴⁴ The complexity of the pollution issues moved the Massachusetts Superior Court to appoint a special master, Harvard Law School Professor Charles Haar, to resolve disputed factual issues.⁴⁵ The factual findings of the special master led to an agreement between the parties that was aimed at rectifying the pollution problem.⁴⁶ To monitor compliance with this agreement, the court appointed Professor Haar to oversee the cleanup.⁴⁷ However, thirteen months after the court-approved agreement was handed down there had been no real progress toward the alleviation of the pollution of Boston Harbor.⁴⁸ As a result, in October 1984, Quincy and the MDC were back in court.⁴⁹

This time, *City of Quincy v. Metropolitan District Commission* did not result in a traditional judgment.⁵⁰ Armed with the power of the court, Massachusetts Superior Court Judge Paul G. Garrity threatened to place the MDC in receivership and ordered a ban on most new sewer hookups to the MSS.⁵¹ This ruling was designed to force the Massachusetts Legislature to create a new authority to run the MSS.⁵² Judge Garrity's strong-arm tactics succeeded.⁵³ Lawmakers reluctantly passed a bill in 1984 creating the MWRA.⁵⁴

The MWRA was charged with the operations and maintenance of the MSS as well as bringing the system into compliance with federal

⁴⁴ *City of Quincy v. Metropolitan Dist. Comm'n*, Civ. No. 138,477 (Mass. Super. Ct., Norfolk County, filed Dec. 17, 1982); Doneski, *supra* note 3, at 563.

⁴⁵ Doneski, *supra* note 3, at 563. For a detailed account of the role of the special master in the *City of Quincy v. Metropolitan District Commission* litigation, see generally Timothy G. Little, *Court-Appointed Special Masters in Complex Environmental Litigation: City of Quincy v. Metropolitan District Commission*, 8 HARV. ENVTL. L. REV. 435 (1984). See also Report of the Special Master Regarding Findings of Fact and Proposed Remedies, *City of Quincy v. Metropolitan Dist. Comm'n*, Civ. No. 138,477 (Mass. Super. Ct., Norfolk County, filed Dec. 17, 1982).

⁴⁶ Doneski, *supra* note 3, at 563.

⁴⁷ *Id.* at 564.

⁴⁸ See *id.* at 565.

⁴⁹ *Id.*

⁵⁰ *Boston Braces For Harbor Clean-up; Bonding clout gives new agency power to fund clean-up effort*, ENGINEERING NEWS-RECORD, Feb. 21, 1985, at 24 [hereinafter *Boston Braces For Harbor Clean-up*].

⁵¹ *Id.*

⁵² See *id.* The MDC was plagued with financial and operational problems that most agreed would bar it from effectively making the improvements to the MSS necessary to clean up Boston Harbor, thus necessitating the creation of a new authority to oversee the cleanup and operate the MSS. Doneski, *supra* note 3, at 609. For a more detailed discussion of the need for the creation of the MWRA, see Doneski, *supra* note 3, at 609-16.

⁵³ *Boston Braces For Harbor Clean-up*, *supra* note 50, at 24; Doneski, *supra* note 3, at 606.

⁵⁴ 1984 Mass. Acts 372, § 3(a); *Boston Braces For Harbor Clean-up*, *supra* note 50, at 24; Doneski, *supra* note 3, at 606.

and state environmental laws.⁵⁵ The MWRA took over from the MDC on July 1, 1985, and after two centuries of pollution, it appeared that Bostonians would finally begin cleaning up Boston Harbor.⁵⁶ However, neither EPA nor the CLF demonstrated very much confidence that the creation of this new authority would result in an effective cleanup of Boston Harbor.⁵⁷ On January 31, 1985, prior to the MWRA taking over the MSS, EPA filed suit in Federal District Court against the Commonwealth of Massachusetts, the MDC, and the MWRA seeking to obtain a court-monitored compliance schedule for the cleanup of Boston Harbor.⁵⁸ On May 22, 1985, the CLF successfully petitioned the District Court to lift the stay on its previous action against the MDC and consolidate the case with EPA's suit.⁵⁹ This consolidated action resulted in partial summary judgment against the MWRA as to its liability, and a court-monitored cleanup was ordered.⁶⁰

The cleanup of Boston Harbor finally began in late 1985 and is still ongoing.⁶¹ Under the watchful eye of the United States District Court Judge in charge of monitoring the cleanup, Judge A. David Mazzone, the MWRA has proceeded with the renovation and modernization of the MSS.⁶² This process has included the construction of a plant to process sludge into fertilization pellets, the discontinuation of sludge dumping into the harbor, and the siting of a back-up landfill for excess processed sludge.⁶³ The cleanup also calls for the construction of a new primary treatment plant and the addition of a secondary treatment facility on Deer Island.⁶⁴ The Nut Island Treatment Plant is to be closed.⁶⁵ A five and one-half mile tunnel under Boston Harbor is to be established to transport sewage from Nut Island to Deer Island.⁶⁶ A nine and one-half mile outfall pipe that will carry the treated sewage out to sea is also slated for tunneling.⁶⁷

⁵⁵ 1984 Mass. Acts 372, § 8(i), (n); Doneski, *supra* note 3, at 607.

⁵⁶ See *Boston Braces For Harbor Clean-up*, *supra* note 50, at 24; Doneski, *supra* note 3, at 606.

⁵⁷ See *Boston Braces For Harbor Clean-up*, *supra* note 50, at 24.

⁵⁸ *United States v. Metropolitan Dist. Comm'n*, [1985] 23 Env't Rep. (BNA) 1350 (D. Mass. Jan. 31, 1985).

⁵⁹ *Id.* at 1350.

⁶⁰ *Id.*

⁶¹ Hecht, *supra* note 7, at 32.

⁶² *Judge Asked To Approve Cut In Boston Harbor Spending*, 14 AIR WATER POLLUTION REP., Apr. 8, 1991.

⁶³ Hecht, *supra* note 7, at 32-34.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

All of these improvements are centered on the modernization and repair of the MSS. The MSS is responsible for the disposal of all sewage from the forty-three communities surrounding Boston and is the major contributor to the pollution of Boston Harbor.⁶⁸ Therefore, to understand the impact that these improvements will have on the condition of Boston Harbor, it is first necessary to have an understanding of the current condition of the MSS.

III. THE METROPOLITAN SEWERAGE SYSTEM

While Boston Harbor's pollution problems are the end result of more than just the inadequacies of the MSS, the sewage discharged into the Harbor through the MSS is undoubtedly the major catalyst of the Harbor's problems.⁶⁹ This section provides an overview of the wastes that the MSS has transported to the Harbor on a daily basis and the environmental devastation that has resulted from such disposal.

A. *Waste Disposal in Boston Harbor*

The MSS's primary method of disposal is through outfalls from its Deer Island and Nut Island treatment facilities.⁷⁰ Currently, wastes from over forty-three municipalities are conveyed through the MSS to either Deer Island or Nut Island for primary treatment.⁷¹ After receiving primary treatment, which ideally removes up to sixty-five percent of suspended solids from the sewage, the effluent is discharged into Boston Harbor through outfalls.⁷² The effluent discharged from the Deer Island and Nut Island plants can account for up to fifty percent of all water entering the Harbor on any given day.⁷³ The remainder of the "fresh water" that enters Boston Harbor daily comes from the Charles, Mystic, Chelsea, and Neponset Rivers.⁷⁴

⁶⁸ Doneski, *supra* note 3, at 569.

⁶⁹ See *id.* at 567.

⁷⁰ *Id.* at 569.

⁷¹ *Id.* Deer Island receives wastes from twenty-two communities, including Boston, Cambridge, and most municipalities to the north of Boston. *Id.* Nut Island services those communities to the south of Boston that are part of the MSS. *Id.*

⁷² *Id.* at 570. Deer Island uses two outfalls, which discharge wastes approximately fifty feet below the surface in the President Roads shipping channel, and also has three back-up outfalls which are used when the incoming sewage exceeds the capacity of the two main outfalls. *Id.* Nut Island has two main outfalls and two back-up outfalls. *Id.* at 569.

⁷³ Hecht, *supra* note 7, at 32. The four rivers feeding the Harbor send an average of eighteen cubic meters of water per second into it while the outfalls from Deer Island and Nut Island deliver approximately twenty cubic meters per second of effluent into the Harbor. *Id.*

⁷⁴ *Id.*

Unfortunately, these rivers are also polluted and just compound the pollution problem in the Harbor.⁷⁵

Boston Harbor is some forty-seven square miles, and holds massive quantities of water at high tide.⁷⁶ However, as the designers of the first sewage system found in 1876, it lacks the capability to flush itself out sufficiently with the tides.⁷⁷ The Harbor is partially enclosed by islands and the coastline, and that, accompanied by the shallow depths of the Inner Harbor, results in only about seventeen percent of the Harbor's water being rejuvenated in any one tidal cycle.⁷⁸ As a result, a substantial amount of the effluent discharged into the Harbor, as well as the pollution carried to the Harbor by the incoming rivers, simply stagnates in the Harbor waters and/or settles to its floor.⁷⁹

In addition to the daily effluent discharges, until December 1991, Boston would release approximately 400,000 to 500,000 gallons (50 to 70 dry tons) of sludge into the Harbor daily.⁸⁰ Sludge is composed of the greases and scum that have been skimmed off the top of the effluent and the heavier materials, including settleable solids and some suspended solids that settle to the bottom of the effluent.⁸¹ Duplicating the mistakes of the past, the MSS relied on discharging the sludge on the outgoing tide in the hope that it would reduce the amount of sludge in the Harbor.⁸² The discharge of the sludge resulted each day in a three-mile-long stream of sludge floating through Boston Harbor, dotted with grease balls and tampon applicators.⁸³ In addition to creating a nuisance to boaters and a playground for seagulls, a substantial portion of this sludge waste would settle on the Harbor floor or wash up on neighboring beaches.⁸⁴ In fact, at the outset of the cleanup, the discharge of sludge into Boston Harbor was considered the cleanup's most pressing problem.⁸⁵

⁷⁵ See *id.*

⁷⁶ Doneski, *supra* note 3, at 559.

⁷⁷ Hecht, *supra* note 7, at 32.

⁷⁸ *Id.*

⁷⁹ See *id.*

⁸⁰ *Boston Ends 40-Year Practice of Dumping Sludge into Harbor*, *supra* note 21.

⁸¹ Allen, *supra* note 11, at 1; Doneski, *supra* note 3, at 580.

⁸² See Allen, *supra* note 11, at 1.

⁸³ *Id.*; Doneski, *supra* note 3, at 580.

⁸⁴ Allen, *supra* note 11, at 1; Doneski, *supra* note 3, at 580.

⁸⁵ *United States v. Metropolitan Dist. Comm'n*, [1985], 23 *Env't Rep. (BNA)* 1350 (D. Mass. Jan. 31, 1985) ("The Court finds that there is need for expedition to resolve the ongoing discharges of sludge . . . into Boston Harbor . . ."); see also John J. Kosowatz, *Harbor Cleanup Builds Momentum*, *ENGINEERING NEWS-REC.*, Oct. 21, 1991, at 28 ("[The cessation of sludge discharges] is the most visible—and so far most critical—of the 21 court-ordered construction

Aggravating the pollution problems in Boston Harbor has been the inability of Boston's archaic sewer system to handle the increasing flow of wastes as Boston has grown.⁸⁶ It is not unusual for the treatment capacities at the Deer Island and Nut Island plants to be exceeded.⁸⁷ When the maximum capacity of Deer Island, which is 600 million gallons of effluent a day (mgd), is exceeded, excess sewage is diverted to Moon Island which, lacking any treatment facilities, discharges raw sewage immediately and directly into the Harbor.⁸⁸ Similarly, when the maximum 280 mgd capacity at Nut Island is exceeded, raw sewage is diverted directly to the outfall pipes, bypassing the treatment plant, where it is discharged into the Harbor along with the treated effluent.⁸⁹

The ability of the Deer Island and Nut Island plants to treat the incoming sewage is exceeded most often as the direct result of either operational difficulties at the plants or the introduction of non-sewage waters into the system.⁹⁰ At both plants, outdated equipment, the lack of replacement parts and preventive maintenance, and inadequate staffing cause numerous shutdowns each year that necessitate the use of the Moon Island outfall and the Nut Island bypasses.⁹¹ These problems are simply compounded by the infiltration/inflow (I/I) of extraneous liquids into the MSS.⁹² Groundwater infiltrates the MSS through defects in the pipes, joints, connections, and manhole walls while water from often illegally connected roof leaders, foundation and surface drains, streams, and catch basins accounts for inflow into the system.⁹³ I/I alone frequently forces the volume of sewage in the system beyond the MSS's treatment capacity.⁹⁴

Moreover, approximately fifty percent of the population serviced by the MSS has its waste removed by combined sewers.⁹⁵ These combined sewer systems, most built before 1910, collect human and industrial waste as well as storm water run-off.⁹⁶ When the flow of

milestones imposed on the authority to bring it into compliance with secondary treatment standards required by the Federal Water Pollution Control Act.").

⁸⁶ See Doneski, *supra* note 3, at 572.

⁸⁷ *Id.* at 571.

⁸⁸ *Id.* at 574-75.

⁸⁹ *Id.* at 573-74.

⁹⁰ *Id.* at 575.

⁹¹ See *id.* at 575-77.

⁹² *Id.* at 577.

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.* at 572.

⁹⁶ *Id.*

wastes surpasses the carrying capacity of these systems' outdated pipes, the excess waste, the "overflow," is discharged directly into Boston Harbor, or the rivers feeding the Harbor, through overflow pipes.⁹⁷ These combined sewer overflows (CSOs) are most prevalent during periods of wet weather when increased storm water entering the system drastically overburdens these systems' ability to transport wastes.⁹⁸ This overflow system provides no treatment and therefore dumps raw sewage directly into the waterways of Greater Boston.⁹⁹

Prior to the commencement of the Harbor cleanup, these CSOs were responsible for up to seven billion gallons of untreated sewage being discharged into Boston Harbor each year.¹⁰⁰ This form of pollution was the primary cause for most of the beach closings that plagued the Harbor's shores in the 1970s and 1980s.¹⁰¹

B. *Feeling the Effects—The Polluted Harbor*

The constant use of Boston Harbor as a receptacle for all of the metropolitan area's waste, both treated and untreated, has resulted in the environmental devastation of the Harbor.¹⁰² The Inner Harbor, which is polluted primarily from CSOs and pollution fed into the Inner Harbor from the Charles and Mystic Rivers, has been plagued with high levels of nutrients which have resulted in decreased oxygen supply in the Inner Harbor.¹⁰³ The depletion of oxygen in the water adversely affects marine life, often destroying certain forms of life and harming others.¹⁰⁴ Moreover, the overwhelming amount of untreated

⁹⁷ *Id.*

At the junction of community and interceptor sewers, regulating mechanisms allow excess combined sewage to overflow into a conduit which leads to the receiving waters. At the end of all conduits which empty into Boston Harbor are devices called tide gates. They are essentially flaps which open and allow for the release of sewage at low tide, while keeping out sea water at high tide.

Id. at 573.

⁹⁸ *Id.* However, even on a dry day up to fifteen million gallons of untreated sewage can be discharged into the Harbor through CSOs. *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.* Boston's sewer pipes were so inadequate to handle the daily flow of wastes that the overflows that discharged directly into the Harbor were known to dump raw sewage into the Harbor daily, regardless of the weather. *Id.*

¹⁰¹ Dianne Dumanoski, *MWRA to Review Plan to End Sewerage Overflow*, BOSTON GLOBE, Sept. 19, 1990 (Metro/Region), at 26.

¹⁰² See Doneski, *supra* note 3, at 579.

¹⁰³ *Id.* at 578-79.

¹⁰⁴ *Id.* Fin rot disease was recorded in alarming rates in flounder that inhabit the Harbor. While the recent cleanup efforts have reduced the percentage of flounder afflicted with fin rot, it is still present in the Harbor population. Allen, *supra* note 11, at 1.

sewage that enters the Inner Harbor through CSOs, coupled with the Inner Harbor's minimal ability to take advantage of tidal flushing, has resulted in the accumulation of over nine feet of waste on the floor of the Inner Harbor.¹⁰⁵

While pollutants discharged into the Outer Harbor are more likely to have been treated and become diluted more easily in the deeper waters of the Outer Harbor, their effect on the Outer Harbor has nonetheless been devastating.¹⁰⁶ The Outer Harbor receives all the effluent and sludge discharged through the Deer Island and Nut Island outfalls.¹⁰⁷ The most obvious effect of this waste disposal is the beach closings that result when the wastes wash toward the beaches of the Outer Harbor whenever the weather conditions so dictate.¹⁰⁸ However, the influx of so many gallons of waste a day also has less apparent effects, including the altered aquatic environment surrounding the sewage outfalls.¹⁰⁹

Pollution-tolerant species have replaced normal plant species and reduced the variety and quantity of commercially viable fish in the Harbor.¹¹⁰ There is also a buildup in the concentration of toxic wastes, such as polychlorinated biphenyls (PCBs), in the Outer Harbor.¹¹¹ This buildup of toxins detrimentally affects the fish population in Boston Harbor as well, causing certain populations to exhibit diseases associated with exposure to toxins.¹¹² The pollution of the Outer Harbor also caused a substantial portion of the Harbor's shellfish beds to be closed to all use.¹¹³

While the discontinuance of further polluting of Boston Harbor cannot completely rectify the cumulative effect of more than a century of pollution, it can help the Harbor begin its own natural healing process.¹¹⁴ By eliminating, where possible, the discharge of wastes into Boston Harbor and by providing more substantial treatment when discharges cannot be avoided, the MWRA can assist the natural processes that will really "clean up" the Harbor.¹¹⁵ The problem has been

¹⁰⁵ Doneski, *supra* note 3, at 579.

¹⁰⁶ *See id.* at 580.

¹⁰⁷ *Id.* at 578.

¹⁰⁸ *Id.* at 581.

¹⁰⁹ *Id.* at 580.

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.* Toxic substances resist breakdown and can accumulate in the tissue of species living in the polluted waters (bioaccumulation) causing diseases such as fin rot, which is prevalent in Boston Harbor fish. *Id.*

¹¹³ Doneski, *supra* note 3, at 581.

¹¹⁴ *See* Allen, *supra* note 11, at 1.

¹¹⁵ *See id.*

getting Massachusetts to do what is necessary to commence the clean-up process. That is where the role of the court and Judge Mazzone have been so vital to the success of the cleanup.

IV. THE COURT CLEANS UP BOSTON HARBOR

The environmental and economic consequences of the pollution of Boston Harbor clearly demanded rectification. Nevertheless, this environmental deterioration was not enough to move Massachusetts lawmakers to act. Therefore, the Harbor cleanup was not initiated without the pressure of the legal system. If Boston's politicians were blind to the extent of the problem and the size and cost of the cleanup, Judge A. David Mazzone quickly opened their eyes and got their attention.

A witness to years of political lethargy, EPA and the CLF understood that the creation of the MWRA, although a step in the right direction, could not guarantee the cleanup of Boston Harbor. *United States v. Metropolitan District Commission* was a clear statement of EPA's and the CLF's lack of confidence in the Massachusetts political machine.¹¹⁶ The goal of this litigation was to force the MWRA to actively pursue the cleanup of Boston Harbor.¹¹⁷ The result of this litigation was that and much more.

United States District Court Judge A. David Mazzone, who presided over *United States v. MDC* and who has monitored the cleanup ever since, turned out to be the Harbor cleanup's greatest ally. In his opinion in *United States v. MDC*, Judge Mazzone made it clear that he would not hesitate to step in if the MWRA failed to "expeditiously" clean up Boston Harbor.¹¹⁸ He reaffirmed his dedication to the cleanup of the Harbor three months later when he issued an interim order that established a schedule of steps the MWRA needed to take to commence the cleanup.¹¹⁹ This interim order also required the MWRA

¹¹⁶ See *United States v. Metropolitan Dist. Comm'n*, [1985] 23 Env't Rep. (BNA) 1350 (D. Mass. Jan. 31, 1985).

¹¹⁷ *Id.* at 1350.

¹¹⁸ *Id.*

If the MWRA acts expeditiously, it need not concern itself with interference from this Court. . . . At the same time, this Court was invited into this litigation only when voluntary efforts proved ineffective. The plaintiffs have proven a violation of a federally protected right, and this Court must protect that right if the entity entrusted by the state to do so should falter in its task.

Id.

¹¹⁹ *Id.*

to file monthly compliance reports with the court updating it on the progress of the cleanup.¹²⁰ Finally, the interim order established that "in the event of non-compliance or anticipated non-compliance, any party may petition this Court to compel compliance"¹²¹ Since then, Judge Mazzone has closely monitored the progress of the Boston Harbor Cleanup using "gun-to-the-head rulings" in order to make sure that the cleanup remains on track, if not on schedule.¹²²

The Boston Harbor Cleanup is the largest public works project ever undertaken in New England.¹²³ The complexity of the components and logistics of the cleanup can be overwhelming. However, by remaining focused on the major goals of the cleanup, Judge Mazzone has been able to monitor the project as a whole while also addressing the intricacies of various challenges against the smaller components of the cleanup. The overarching goal of cleaning up Boston Harbor, a clean harbor for the future, can be subdivided into three major goals. First is the complete cessation of all sludge discharges into Boston Harbor.¹²⁴ Next is improvement of the treatment of the effluent that will still be discharged into the Harbor and the halting of the dumping of this effluent so close to shore.¹²⁵ Third is the renovation of the combined sewage systems to end overflows of raw sewage into the Harbor.¹²⁶

Of course, none of these goals could be fulfilled without some difficulties. To varying degrees, each project has faced economic, political, and environmental challenges in the press, legislature, and in Judge Mazzone's courtroom. The following subsections will look at the components of each clean-up objective, the challenges to each objective, and how they have been resolved.

A. *Sludge*

As the cleanup of Boston Harbor got under way, Boston was the only city in the entire world that removed sludge from its sewage only to dump that sludge into the harbor each day along with the effluent

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² David Nyhan, *A Man with a \$6 Billion Job: Clean the Harbor*, BOSTON GLOBE, Apr. 13, 1989 (Op-Ed), at 17.

¹²³ MacKerron, *supra* note 33, at 34.

¹²⁴ See *United States v. Metropolitan Dist. Comm'n*, Civil Action Nos. 85-0489-MA, 83-1614-MA (D. Mass. Compliance Order 1, Dec. 23, 1985), 23 Env't Rep. Cas. (BNA) 1350.

¹²⁵ *Id.*

¹²⁶ Sue Reinert, *The Royal Flush*, BOSTON BUS. J., Mar. 9, 1987, at 1.

from which the sludge had just been removed.¹²⁷ Therefore, it was imperative that Boston end all sludge dumping into the Harbor as soon as possible. The court-ordered cleanup required that Boston cease all dumping by 1991 and that both a primary and a back-up disposal system be established to handle the disposal of sludge.¹²⁸ On December 26th, 1991, the MWRA announced the complete cessation of all sludge dumping, but it did not reach this end without difficulty.¹²⁹ Concerns as to how the sludge was to be treated and where it would be disposed resulted in a number of challenges to this early component of the Boston Harbor Cleanup.¹³⁰

1. How to Dispose of the Sludge

The sludge disposal project faced immediate challenges as EPA and the MWRA battled over the best methods for primary and back-up disposal.¹³¹ Initially, debates centered on which of three potential primary disposal methods would be implemented.¹³² The options were the incineration of the sludge or recycling, which could have been done in one of two ways.¹³³ The first recycling method would squeeze the water from the sludge and blow it dry, thereby killing the bacteria in the sludge.¹³⁴ The residue could then be used as compost.¹³⁵ The second recycling method would also squeeze out the water, but then it would bake the sludge and use the resulting sludge "pellets" as fertilizer.¹³⁶

At first, EPA adamantly defended the position that incineration would be required, at least as a form of back-up disposal.¹³⁷ The MWRA, on the other hand, staunchly supported the implementation of a recycling program, maintaining that neither recycling program would require back-up disposal options.¹³⁸ In the end, EPA opted to

¹²⁷ Larry Tye, *EPA Says Sludge Plan 'Not a Responsible Course'*, BOSTON GLOBE, Jan. 20, 1989 (Metro/Region), at 84 (quoting EPA attorney Jeff Fowley) ("We're the one city in the entire world whose treatment plants collect sludge and dump it back into the harbor the same day.").

¹²⁸ MacKerron, *supra* note 33, at 34; Tye, *supra* note 127, at 84.

¹²⁹ *Boston Ends 40-Year Practice of Dumping Sludge into Harbor*, *supra* note 21.

¹³⁰ See *infra* notes 131-211 and accompanying text.

¹³¹ See Tye, *supra* note 127, at 84.

¹³² See *id.*

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

support recycling the sludge into fertilization pellets.¹³⁹ Moreover, faced with the fact that incineration could potentially violate federal clean air laws because of the high levels of toxins found in the sludge, EPA dropped a plan for back-up incineration.¹⁴⁰ Instead, a mandatory in-state, back-up landfill option was adopted.¹⁴¹

The final mandate for primary disposal of the sludge consisted of a plant that would recycle the sludge into fertilization pellets which would then be sold for certain agricultural purposes.¹⁴² The sludge is shipped in specially designed and covered barges across the Harbor from Deer Island to the recycling plant.¹⁴³ The recycling plant then heats the sludge at over 700 degrees Fahrenheit (380 degrees Celsius).¹⁴⁴ This heating process kills the bacteria in the sludge and produces tiny, three-millimeter sludge pellets.¹⁴⁵ These pellets are then sold as fertilizer.¹⁴⁶

While this approach to sludge disposal clearly surpassed the existing harbor dumping, it was not without its critics.¹⁴⁷ Opponents noted the potential inadequacy of the fertilizer market to absorb these fertilization pellets, which would be competing with other sludge-to-fertilizer plants that were already operating or soon to be operating.¹⁴⁸ Opponents also questioned the existence of any real market for these pellets since their use was limited by the amount of toxins in the sludge.¹⁴⁹ In fact, when the plant was first proposed, the fertilization pellets that it would be producing could not legally be used in Massachusetts as agricultural fertilizer because cadmium levels in the sludge exceeded state health safety levels.¹⁵⁰

¹³⁹ James Franklin, *EPA OK's Plans For Sewerage Disposal*, BOSTON GLOBE, Apr. 5, 1990 (Metro/Region), at 1.

¹⁴⁰ Donald Harleman, *Cutting the Waste in Wastewater Cleanups*, TECH. REV., Apr. 1990, at 60.

¹⁴¹ See Dianne Dumanoski, *EPA To Ask Court To Order MWRA To Study Sites in Walpole, Revere*, BOSTON GLOBE, June 22, 1990 (Metro/Region), at 42.

¹⁴² Hecht, *supra* note 7, at 33.

¹⁴³ *Boston Stops Ocean Dumping Of Sludge*, 123 PUB. WORKS, Apr. 1992, at 96.

¹⁴⁴ Hecht, *supra* note 7, at 33.

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ See Andrew Dabilis, *State OK's 3 Disputed Sludge Sites*, BOSTON GLOBE, Nov. 21, 1989 (Metro/Region), at 23.

¹⁴⁸ *Id.* At the time, both New York and New Jersey were expected to have similar treatment facilities creating even more pellets than the Boston plant. *Id.*

¹⁴⁹ *Id.* When the recycling plant was first proposed, no New England states would accept the pellets. *Id.*

¹⁵⁰ Ross Gelbspan, *State Will Ease Rules On Sludge*, BOSTON GLOBE, May 8, 1991 (Metro/Region), at 33.

In response to the questions raised by the critics of the sludge-to-fertilizer recycling plan, the concept of a back-up landfill was suggested and adopted.¹⁵¹ An in-state landfill would serve as a back-up disposal option for unsold pellets and would also be used as a dump for raw sludge in the event the fertilization plant was forced to halt operations for any prolonged period of time.¹⁵² The Commonwealth of Massachusetts also eventually reduced its standard for an acceptable amount of cadmium in the pellets so that they could be used as fertilizer in Massachusetts.¹⁵³ This would allow Massachusetts to require that the municipalities serviced by the MSS absorb some of the unsold pellets as either fertilizer or fill.¹⁵⁴

2. Siting Problems

Once the methods of primary and back-up disposal of the sludge were determined, the most difficult portion of the project, the siting of the plant and the landfill, commenced. Both siting decisions required extensive studies of all available sites. Furthermore, once those studies were complete, the recommendations were met with vocal opposition from the communities at the top of the lists.¹⁵⁵ However, of the two necessary sites, the site chosen for the recycling plant met with less resistance than the one chosen for the landfill and, in late 1991, the recycling plant, sited in Quincy, became operational.¹⁵⁶ The site for the back-up landfill is still being disputed.

a. *The Sludge-to-Fertilizer Recycling Plant*

The site of the recycling plant was the first to be proposed.¹⁵⁷ The MWRA and EPA conducted a three-year, \$10 million search of three hundred potential sites for the sludge recycling plant, finally selecting

¹⁵¹ Hecht, *supra* note 7, at 33.

¹⁵² *Id.*

¹⁵³ Gelbspan, *supra* note 150, at 33. Originally, pellets had to have levels of two milligrams or less of cadmium per kilogram of dry sludge to be acceptable for agricultural use in Massachusetts. The sludge coming from Deer Island has cadmium levels of approximately 8.9 milligrams per kilogram, which was still far below any federal safety level. *Id.*

¹⁵⁴ *Id.* Governor Weld's first bill to transfer the land for the landfill site from the Department of Corrections to the MWRA required that the forty-three MSS cities absorb any treated sludge that could not be sold. *Id.*

¹⁵⁵ See Franklin, *supra* note 139, at 1.

¹⁵⁶ *Boston Ends 40-Year Practice of Dumping Sludge in Harbor*, *supra* note 21.

¹⁵⁷ Larry Tye, *2 Plants Approved for Sludge in Quincy*, BOSTON GLOBE, Feb. 2, 1989 (Metro/Region), at 23.

the vacant General Dynamics Shipyard in Quincy.¹⁵⁸ Predictably, the citizens of Quincy opposed the placement of the recycling plant at the Shipyard, citing concerns over the potential odor and health problems and the loss of up to ten thousand jobs that the Shipyard could support if reopened.¹⁵⁹ However, the opposition never mounted much of a challenge and the Quincy site was quickly approved.¹⁶⁰ Construction of the recycling plant began soon thereafter, and the plant began recycling sludge in late 1991.¹⁶¹

However, it is likely that Quincy residents now wish they had mounted a more substantial challenge to this plant at the early stages. Ever since it began operating in 1991, the plant, known as the Fore River sludge-to-fertilizer plant, has been plagued with operational difficulties.¹⁶² For example, the Fore River plant was shut down in August of 1992 after several fires brought the operational safety of the plant into serious question.¹⁶³ Judge Mazzone banned all sludge processing at the Fore River plant for a brief period of time while safety concerns were addressed, but even as the plant reopened, questions about the plant's performance were still being voiced.¹⁶⁴ Quincy officials complained that the plant was the cause of noise and odor problems that were being ignored by the MWRA and EPA so as not to delay the cleanup any more than necessary.¹⁶⁵ However, Quincy's concerns seemed to be overshadowed by the debate raging over the siting of the back-up landfill and have received little, if any, real attention since the plant renewed operations.¹⁶⁶

b. *The Back-up Sludge Landfill*

The siting of an in-state landfill that would receive any surplus sludge pellets, as well as other grit and debris that is screened out of the MSS, was a political land mine from day one.¹⁶⁷ After reviewing

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ See *id.* The Shipyard was initially approved as a temporary recycling site, but most citizens understood that this would lead to the permanent plant being sited there. Dabilis, *supra* note 147, at 23.

¹⁶¹ Tye, *supra* note 157, at 23.

¹⁶² Roy Gutterman, *Fore River Sludge Plant Closed; Fires Lead MWRA Officials to Shut Down Facility Until It's Deemed Safe*, BOSTON GLOBE, Aug. 7, 1992 (Metro/Region), at 17.

¹⁶³ *Id.*

¹⁶⁴ Roy Gutterman, *Ban Modified; Sludge To Be Stored at Fore River*, BOSTON GLOBE, Aug. 11, 1992 (Metro/Region), at 26.

¹⁶⁵ *Id.*

¹⁶⁶ See Dabilis, *supra* note 147, at 23.

¹⁶⁷ See Dumanoski, *supra* note 141, at 42.

over three hundred sites, the MWRA proposed to site the landfill in either Walpole or Revere.¹⁶⁸ The Walpole site, which represented the MWRA's first choice for the landfill, was a ninety-five acre parcel of state land next to the state's maximum security prison, Cedar Junction.¹⁶⁹ The Revere site, the MWRA's second choice, was the privately owned, fifty-four acre Rowe's Quarry.¹⁷⁰

The Walpole site was preferred by the MWRA over Rowe's Quarry for a number of reasons.¹⁷¹ The Walpole site was already owned by the Commonwealth of Massachusetts and title need only be transferred from the Massachusetts Department of Corrections to the MWRA.¹⁷² In contrast, Rowe's Quarry was still an operating quarry, and the owner of the land made it clear that the only way the state would get possession of the site was through eminent domain proceedings.¹⁷³ Rowe's Quarry was also in a more densely populated area, and, furthermore, it would have required nearly ten thousand truckloads of fill that would be unnecessary at the Walpole site.¹⁷⁴

The minute it became clear that the MWRA wanted the Walpole site, Walpole residents challenged the decision.¹⁷⁵ In spite of thorough environmental studies by the MWRA and EPA that found the Walpole site most suitable for the landfill, Walpole residents claimed that cracks in the bedrock would cause the contamination of the aquifer that provided Walpole's drinking water.¹⁷⁶ Walpole residents also opposed being forced to carry the excessive burden of both the state's maximum security prison and the new landfill, suggesting that the odors from the landfill had the potential to incite riots at the state prison next door.¹⁷⁷ This was despite the fact that forty-six acres of the site would be used as a buffer between Cedar Junction and the landfill.¹⁷⁸

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ *See id.*

¹⁷² Dumanoski, *supra* note 141, at 42.

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *See Dabilis, supra* note 147, at 23.

¹⁷⁶ James Franklin, *Environmental Groups Rap Sludge Site*, BOSTON GLOBE, Oct. 23, 1990 (Metro/Region), at 16.

¹⁷⁷ *Id.*; *Boston Harbor Cleanup Woes Put Walpole, Mass. in Wringer*, 18 SLUDGE, Mar. 2, 1993, at 1, 3.

¹⁷⁸ Dumanoski, *supra* note 141, at 42.

Walpole's opposition became extremely vocal and the residents threatened to sue the MWRA and EPA over the siting decision.¹⁷⁹ Walpole did in fact sue, first challenging EPA's supplemental environmental impact statement (SEIS) and then the United States Army Corps of Engineers's permit for the site.¹⁸⁰ Both actions were in front of Judge Mazzone and both resulted in summary judgment for the defendants.¹⁸¹ Each of these challenges focused on alleged procedural violations of NEPA, and in *Walpole v. Reilly*, Judge Mazzone made clear his view of these "form over substance" challenges to the Boston Harbor Cleanup: "While the Towns have focused on the trees and discovered a few diseased branches, my review of their objections convinces me of the essential soundness of the trees as well as the forest."¹⁸²

Undaunted by their failures in the court, the opponents took their protests to the street. The more vocal they became, the more attention the state legislature gave to the situation, and eventually the Walpole residents began to gain the support of vote-needy representatives.¹⁸³ The support of politicians was most important, because in order to go forward with the site, the state legislature needed to transfer ownership of the land from the Department of Corrections to the MWRA.¹⁸⁴ Walpole defeated the MWRA in the public relations war and made the issue a political quagmire.¹⁸⁵ As a result, in June of 1990, the Massachusetts State House of Representatives voted to delay the decision on whether to transfer the land to the MWRA for six months.¹⁸⁶ The political logjam that had caused the Harbor pollution in the first place was now affecting the cleanup even at its earliest stages. The cleanup faced its first showdown between Judge Mazzone and state lawmakers.

EPA, disgruntled with the legislature's refusal to act on the transfer of the site, asked Judge Mazzone to order the transfer and publicly chastised the legislature.¹⁸⁷ Then regional administrator of EPA, Julie

¹⁷⁹ See *id.*

¹⁸⁰ *Towns of Norfolk & Walpole v. United States Army Corps of Eng'rs*, 772 F. Supp. 680, 682 (D. Mass. 1991); *Walpole v. Reilly*, 761 F. Supp. 867, 872 (D. Mass. 1991).

¹⁸¹ *Norfolk & Walpole*, 772 F. Supp. at 692; *Reilly*, 761 F. Supp. at 894.

¹⁸² *Reilly*, 761 F. Supp. at 894.

¹⁸³ See Franklin, *supra* note 176, at 16.

¹⁸⁴ *Id.*

¹⁸⁵ See *id.*

¹⁸⁶ Frank Phillips, *House Vote Delays Decision About Site For MWRA Landfill*, BOSTON GLOBE, June 21, 1990 (Metro/Region), at 25.

¹⁸⁷ See *Prodding the Harbor Project*, BOSTON GLOBE, July 5, 1990 (Ed.), at 10.

Belega, went so far as to note that the legislature "would like the judges to make decisions they don't want to make."¹⁸⁸ However, Judge Mazzone did not order the transfer of the land.¹⁸⁹ Instead, he threatened the legislature with punitive actions, including fines at one extreme and taking over control of the cleanup from the MWRA at the other, if they did not approve the transfer by December 5, 1990.¹⁹⁰ Although faced with the potential of court intervention, the Massachusetts Legislature still refused to approve the transfer, and after missing the December 5, 1990 deadline, adjourned for the holidays.¹⁹¹

On December 7, 1990, EPA again requested that Judge Mazzone order the transfer.¹⁹² Using the successful tactics of Judge Garrity, who had forced the creation of the MWRA by banning new sewer hookups to the MSS, Judge Mazzone ordered a moratorium on almost all new sewer hookups to the MSS that would exceed 2,000 gallons per day.¹⁹³ The moratorium was designed to pressure the legislature to approve the Walpole site, but Judge Mazzone also recommended that the MWRA conduct a search for alternative sites.¹⁹⁴ The goal of the moratorium was met when, on May 20, 1991, Governor William Weld signed a bill into law that authorized the transfer.¹⁹⁵ However, it was only passed by the legislature after the three-month moratorium on new sewer hookups delayed 7,222 residential projects and over 17,000 commercial and industrial projects in the cities serviced by the MSS.¹⁹⁶

While the MWRA commenced design work and tests at the Walpole site, in an attempt to get back on schedule after the costly delay, opponents continued to challenge the acceptability of the site.¹⁹⁷ Governor Weld appointed a special committee to search for alternative sites, even though the Walpole site had been chosen after almost three hundred in-state sites had been rejected.¹⁹⁸ Although the clean-up

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *Tough Words in Harbor Cleanup*, ENGINEERING NEWS-RECORD, July 12, 1990, at 12.

¹⁹¹ James Franklin, *EPA Asks Court For Landfill in Walpole*, BOSTON GLOBE, Dec. 7, 1990 (Metro/Region), at 33.

¹⁹² *Id.*

¹⁹³ See *United States v. Metropolitan Dist. Comm'n*, 757 F. Supp. 121, 129-30 (D. Mass. 1991); James Franklin, *Judge Halts Sewer Hookups; Pushes State on Harbor Landfill*, BOSTON GLOBE, Feb. 26, 1991 (Nat'l/Foreign), at 1.

¹⁹⁴ See *United States v. Metropolitan Dist. Comm'n*, 757 F. Supp. at 129-30.

¹⁹⁵ *Judge Ends Boston Sewer Ban With Transfer of Landfill Site*, 16 SLUDGE, June 5, 1991, at 1, 3.

¹⁹⁶ *Id.* The moratorium ran from February 25, 1991 to May 20, 1991. *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*; Dumanoski, *supra* note 167, at 42.

order required that the landfill be in-state, that did not stop opponents from trying to force an out-of-state site on the MWRA.¹⁹⁹ Massachusetts Representative Barney Frank went so far as to attach a rider to a federal EPA appropriations bill that was designed to bar any agency, especially EPA, from prohibiting the MWRA from shipping the sludge out of state.²⁰⁰ Representative Frank's actions drew strong criticism from the CLF and EPA, as well as members of the Senate Appropriations Subcommittee, and the rider was eventually deleted from the appropriations bill.²⁰¹ However, the continued political opposition to the Walpole site convinced the MWRA's board of directors to reopen the search for other, more acceptable sites, including out-of-state sites, even though the clean-up order mandated an in-state facility.²⁰² Bowing slightly to political pressure, EPA noted that it would not object to the sale of sludge out-of-state, but refused to waive the necessity of an in-state, back-up landfill.²⁰³

On June 11, 1993, the Massachusetts Department of Environmental Protection gave final approval of the Walpole site, noting that, consistent with the findings of EPA and the United States Army Corps of Engineers, the site posed no environmental concerns to the surrounding communities.²⁰⁴ This was followed by a July order by Judge Mazzone requiring the MWRA to move forward with the Walpole site and accept bids for its construction.²⁰⁵ But just as it appeared that the six-year battle over the siting of the landfill was about to end, the MWRA's board of directors approved a proposal that would send any excess sludge two thousand miles away to Utah instead of to Walpole.²⁰⁶

The Utah alternative would require that the MWRA sign a thirty-year contract for a landfill that could handle over fourteen times more

¹⁹⁹ Ross Gelbspan, *Frank's Legislation on Cleanup Decried*, BOSTON GLOBE, June 6, 1991 (Metro/Region), at 31.

²⁰⁰ *Id.*

²⁰¹ See Ross Gelbspan, *Bid To Block Landfill Appears Dead; Congress Slow to Back Frank's Plan to Stop Walpole Project*, BOSTON GLOBE, Aug. 14, 1991 (Metro/Region), at 21. In a letter to Senate Appropriations Subcommittee Chairwoman Barbara Mikulski (D-Md.), Senator John Chafee (R-R.I.) "blasted Frank's amendment as a 'highly unusual and inappropriate intrusion' into an ongoing enforcement case." *Id.*

²⁰² David Chandler, *MWRA to Seek Alternative to Walpole Sludge Dump*, BOSTON GLOBE, Nov. 21, 1991 (Metro/Region), at 33.

²⁰³ *Boston Harbor: Out-Of-State Dump Site Sought*, Greenwire (Clean Water), Apr. 3, 1992.

²⁰⁴ *Massachusetts DEP Approves Sludge Landfill; Doubts Remain As To Site's Suitability*, 18 SLUDGE, June 22, 1993, at 1, 3.

²⁰⁵ *Sludge Saga Continues*, 18 SLUDGE, July 20, 1993, at 1, 3.

²⁰⁶ *MWRA Drops Walpole Sludge Landfill, Attempts to End Years of Controversy*, 18 SLUDGE, Sept. 14, 1993, at 1, 3.

sludge than the proposed Walpole site.²⁰⁷ MWRA officials also claimed that the Utah site would be the less expensive of the two sites, thus saving MWRA ratepayers money.²⁰⁸ The Utah site still requires EPA and court approval.²⁰⁹ EPA, however, is leaning toward acceptance of the Utah site, and since it has been EPA that has been most adamant about an in-state site, the court is not likely to refuse the site if EPA accepts it.²¹⁰

If Quincy's opposition to the recycling plant is an example of a failed NIMBY challenge, Walpole's efforts to keep the back-up landfill out of their backyard could be considered the "how to" of NIMBY actions.²¹¹ Walpole was able to arouse a fervor that veiled the eyes of politicians and citizens to the legitimacy of the numerous studies that found the Walpole site to be safe and efficient. As a result, those opposed to the Walpole site were able to effectively defeat the goals of the cleanup by causing additional delays and expenditures so that the landfill would not be in their backyard. Despite Judge Mazzone's efforts to keep the siting process on schedule and to compel the Commonwealth to accept the Walpole site, not even a court-run cleanup can avoid the political impetus of a NIMBY attack. However, Judge Mazzone's pressure on the Massachusetts Legislature forced lawmakers to act in order to find an acceptable site rather than allowing them to kill the site through inaction, thus avoiding the tough choices involved in the Boston Harbor Cleanup.

B. *Effluent*

The 1972 amendments to the Federal Water Pollution Control Act mandated that all POTWs apply secondary treatment to all sewage that was to be discharged into the waters of the United States.²¹² However, even if the MDC had taken immediate steps in the 1970s to implement secondary treatment, that would not have solved the Harbor's pollution problems. The inadequacies of the existing primary treatment plants on Deer Island and Nut Island were too extensive to be solved by simply adding secondary treatment.²¹³ The MWRA

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ See *Interstate Waste: EPA Favors Sending MA Sludge To Utah*, Greenwire (Wastes and Hazardous Substances), Sept. 9, 1993.

²¹⁰ See *id.*

²¹¹ "NIMBY" refers to the "Not In My Back Yard" phenomenon where local citizens oppose proposed projects or siting decisions in their own community.

²¹² 33 U.S.C. § 1311(b)(1)(B) (1976).

²¹³ See Doneski, *supra* note 3, at 575-76.

recognized this, and one of the most essential components of the clean-up project became the construction of new, modern primary and secondary treatment facilities.²¹⁴ In addition to new primary and secondary treatment facilities, the cleanup also called for the tunneling of a nine and one-half mile outfall pipe that would carry the treated effluent much further out into Boston Harbor.²¹⁵

While everyone agreed that improved treatment of the effluent was essential to the cleanup of Boston Harbor, differences in what form those improvements should take resulted in a number of challenges to the cleanup project.²¹⁶ Most challenges centered either on the magnitude and location of the new primary treatment plant, the necessity and effectiveness of secondary treatment, or the environmental impact of the new outfall.²¹⁷ This subsection will explore each of these components and the challenges thereto.

1. How Much Treatment is Enough?

Despite the need for improved primary treatment, the means by which the MWRA proposed to make these improvements was not accepted by everyone.²¹⁸ Furthermore, even though the Clean Water Act required secondary treatment, some environmentalists and scientists questioned the efficiency and viability of secondary treatment.²¹⁹ These questions are still being debated as the cleanup progresses and may still affect the amount of treatment the effluent will finally receive.²²⁰ So, how much treatment is enough?

a. *Primary Treatment*

When the new primary treatment facility is completed it will be the largest primary treatment facility in the United States.²²¹ All effluent treatment, both primary and secondary, is to be consolidated on Deer Island, necessitating a plant that can handle a capacity of up to 4.9 million cubic meters of sewage a day.²²² The plant will receive an average of 300 mgd from the northern portion of the MSS, from which

²¹⁴ Hecht, *supra* note 7, at 34.

²¹⁵ *Boston May Tunnel Record Outfall*, ENGINEERING NEWS-RECORD, Nov. 5, 1987, at 5.

²¹⁶ See Hecht, *supra* note 7, at 33.

²¹⁷ See *id.*

²¹⁸ See *id.*

²¹⁹ See Dianne Dumanoski, *Harbor Effort May Fall Short; Report Says Sewerage May Require Added Treatment*, BOSTON GLOBE, Apr. 17, 1993 (Metro/Region), at 15.

²²⁰ See *id.*

²²¹ Hecht, *supra* note 7, at 33.

²²² *Id.*

it has always received sewage.²²³ It will also receive approximately 160 mgd from the southern portion of the system which has historically been treated at Nut Island.²²⁴ The Nut Island plant will cease to treat and discharge effluent into the Harbor and will be converted to a headworks for the Deer Island plant.²²⁵ The sewage will be pumped from Nut Island through a five and one-half mile tunnel under the Harbor to the new treatment facilities at Deer Island.²²⁶

The new plant will treat sewage in the same manner as the existing treatment plants at Deer Island and Nut Island, but will not be plagued by the operational problems that these plants faced.²²⁷ Improvements in the plant's operations will effectively eliminate raw sewage discharges through Moon Island and the bypasses at Nut Island.²²⁸ The new Deer Island treatment plant will utilize traditional settling tanks to separate the sludge from the effluent.²²⁹ To maximize the use of space at Deer Island, these tanks are being constructed in pairs, one on top of the other.²³⁰ This process is designed to remove an average of sixty percent of the solids as well as close to forty percent of the toxic substances in the sewage.²³¹ When the secondary treatment plant is completed, the effluent will proceed to secondary treatment prior to being discharged into the Harbor.²³² Until the plant is completed, the effluent will be discharged directly into the Harbor, initially through the existing outfalls and eventually through the new nine and one-half mile outfall that is tentatively scheduled for completion in 1999.²³³

The main concern regarding the new treatment plant has been the scale of the project.²³⁴ The capacity of most treatment plants is based on the size of the population that the sewer system services.²³⁵ In the case of the Deer Island facility, the treatment plant has been designed to handle a capacity of almost three times that which is dictated by

²²³ Kosowatz, *supra* note 85, at 28.

²²⁴ *Id.*

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ See Hecht, *supra* note 7, at 35.

²²⁸ See *id.*

²²⁹ *Id.*

²³⁰ *Id.*

²³¹ *Id.*

²³² See Hecht, *supra* note 7, at 35.

²³³ See *id.*

²³⁴ See *id.* at 33.

²³⁵ *Id.* "Sewer engineers usually allow for about 0.4 cubic meters of waste from each resident."
Id.

the size of Boston's population alone.²³⁶ This is necessary because of the inadequacies of the sewer system itself.²³⁷ The storm run-off that inundates the system, and ground water that seeps into the system, require that the plant have such an enormous capacity threshold.²³⁸

Opponents, referring to the Deer Island plant as "old-time giant scale engineering," argued that there was a better alternative to the massive Deer Island treatment plant.²³⁹ Instead of constructing a plant that was forced to handle three times the capacity of a normal plant, opponents argued that a more effective plan would be to prevent the storm run-off and seepage from entering the MSS.²⁴⁰ According to opponents, by reducing the amount of non-sewage liquids that enter the MSS, smaller regional treatment plants could have been possible.²⁴¹ This would, of course, alleviate the potentially disastrous effects of an extended operational shutdown of the Deer Island facility. However, the potential costs of renovating or rebuilding flawed portions of the MSS were eventually deemed too excessive and construction of the Deer Island primary treatment plant began.²⁴² When the primary treatment plant goes on line in late 1994 or 1995, the majority of the secondary treatment plant's construction will commence.²⁴³

b. *Secondary Treatment*

The proposed secondary treatment facilities at Deer Island would remove even more of the solids and toxins that are still present in the effluent after primary treatment.²⁴⁴ After primary treatment, the effluent is transferred to aeration tanks.²⁴⁵ The effluent remains in these aeration tanks for approximately two hours while oxygen is added to it.²⁴⁶ The oxygen is used to increase the growth of microor-

²³⁶ See Hecht, *supra* note 7, at 33.

²³⁷ See *id.*

²³⁸ *Id.*

²³⁹ *Id.* at 34.

²⁴⁰ See *id.*

²⁴¹ Hecht, *supra* note 7, at 34.

²⁴² See *id.*

²⁴³ *Id.* Portions of the secondary treatment plant are to be built on the site of the current primary treatment plant. Therefore, full-scale construction of the secondary treatment plant cannot be commenced until the new primary treatment plant begins operations and the current plant can be demolished. *Id.*

²⁴⁴ *Id.* at 35.

²⁴⁵ Hecht, *supra* note 7, at 35.

²⁴⁶ *Id.*

ganisms that assist in the breakdown of the wastes.²⁴⁷ The effluent is then sent to another set of sedimentation tanks, like those used in the primary treatment process, where more solids and bacteria settle out of the effluent into sludge.²⁴⁸ The combined effect of both primary and secondary treatment is the removal of approximately ninety percent of the solids and fifty to eighty-five percent of the toxic components of the original sewage.²⁴⁹

The debate over the necessity of secondary treatment of effluent discharged into Boston Harbor has been at the heart of the clean-up dilemma from the very start.²⁵⁰ Twenty-two years after the Clean Water Act of 1972 required all POTWs to provide their effluent with secondary treatment, the MWRA continues to discharge effluent that has only received primary treatment into Boston Harbor daily.²⁵¹ With serious construction on secondary treatment facilities not scheduled to begin until 1995, it is clear that effluent being discharged into Boston Harbor will not begin to receive secondary treatment until sometime after the turn of the century.²⁵² Despite the requirements of the Clean Water Act, and the fact that secondary treatment helps remove a substantially increased percentage of the solids and toxins in the effluent, opponents to secondary treatment have challenged this component of the project.²⁵³ Some challenge the project on economic grounds, others on environmental grounds.²⁵⁴

The economic challenge to secondary treatment began when then Governor Michael Dukakis claimed that the Harbor could be cleaned up at less expense without secondary treatment.²⁵⁵ Opponents of the cost of secondary treatment claim that the same results could be met without the expense involved by further enhancing the primary treatment process.²⁵⁶ Most recently, a report by the National Academy of Sciences concluded that a chemically-enhanced primary treatment method is "nearly equivalent to the EPA performance standard for secondary treatment."²⁵⁷ However, since federal law mandates the application of secondary treatment, and Boston Harbor has been re-

²⁴⁷ *Id.*

²⁴⁸ *Id.*

²⁴⁹ *Id.*

²⁵⁰ See *supra* notes 22-38 and accompanying text.

²⁵¹ See Hecht, *supra* note 7, at 33.

²⁵² See *id.*

²⁵³ See Dumanoski, *supra* note 219, at 15; MacKerron, *supra* note 33, at 34.

²⁵⁴ See Dumanoski, *supra* note 219, at 15; MacKerron, *supra* note 33, at 34.

²⁵⁵ See MacKerron, *supra* note 33, at 34.

²⁵⁶ *Id.*

²⁵⁷ Dumanoski, *supra* note 219, at 15.

fused a waiver, these economic arguments have fallen mostly on deaf ears.²⁵⁸ Therefore, absent a decision by Congress to eliminate the secondary treatment requirement from the Clean Water Act, it is unlikely that Boston Harbor will receive less than secondary treatment.²⁵⁹

Going even further, some environmentalists are asking whether or not the sewage should receive more than secondary treatment.²⁶⁰ While secondary treatment reduces the amount of solids and toxins in the effluent, it does not remove very much of the nitrogen that is present in the waste.²⁶¹ Excessive amounts of nitrogen in the waters of Boston Harbor could have a number of detrimental effects on the environment, including an increase in the likelihood of red tides and the eutrophication of the waters in Boston Harbor.²⁶² As a result, some environmentalists are calling for a form of tertiary treatment that would combat these potential problems.²⁶³

One of the effects of excessive nitrogen in marine waters is eutrophication.²⁶⁴ The nitrogen stimulates the growth of marine plants and algae.²⁶⁵ When this growth is overstimulated by the nitrogen, the overabundance of algae and plants can deplete the ocean of the oxygen necessary to support other forms of marine life.²⁶⁶ The depletion of oxygen occurs when dead algae and marine plants decay.²⁶⁷ This results in "a putrid green or brown broth devoid of oxygen-consuming animals."²⁶⁸ Currently, the discharge of sewage into Boston Harbor does increase the growth of algae.²⁶⁹ However, since the discharges are in relatively shallow waters, the tides are able to sustain an equilibrium in the waters surrounding the existing outfall pipes and eutrophication has not been a substantial problem.²⁷⁰ Of course, since the effluent currently discharged into the Harbor only receives primary treatment, the concentration of nitrogen in the effluent is not

²⁵⁸ *See id.*

²⁵⁹ *See id.*

²⁶⁰ *See id.*

²⁶¹ *Id.*

²⁶² Hecht, *supra* note 7, at 36.

²⁶³ *See id.*

²⁶⁴ *Id.*

²⁶⁵ *Id.*

²⁶⁶ *Id.*

²⁶⁷ Hecht, *supra* note 7, at 36.

²⁶⁸ *Id.*

²⁶⁹ *Id.*

²⁷⁰ *See id.*

as great as it will be once sewage has received secondary treatment as well.²⁷¹

The other concern stemming from the increase of nitrogen in the waters of Boston Harbor is the possibility that it might result in an increase in the occurrence of toxic red tides along the Massachusetts coastline.²⁷² According to experts, the increased nitrogen might increase the growth of toxic algae, which are then eaten by shellfish in the contaminated waters.²⁷³ These shellfish thus become poisonous to humans, and the consumption of these contaminated shellfish can result in paralytic poisoning.²⁷⁴ As a result, any potential increase in the occurrence of red tides carries with it substantial risk to both human health and the shellfish industry.²⁷⁵

Therefore, based on these potential risks, some experts have called for the implementation of tertiary treatment for Boston Harbor.²⁷⁶ Tertiary treatment would be used to remove the nitrogen and other nutrients that are not removed during the primary and secondary treatment processes.²⁷⁷ Currently, however, processes that could be implemented to remove nitrogen from the effluent are still in the experimental stage.²⁷⁸ This lack of viable technology, coupled with the uncertainty of the effects of more nitrogen entering the Harbor, have inhibited efforts to have tertiary treatment added to the clean-up process of Boston Harbor.²⁷⁹ Hence, there are no plans to add tertiary treatment to the clean-up plan.²⁸⁰

So the answer as to how much treatment is enough remains contested. Some believe that enhanced primary treatment is enough, while others support additional tertiary treatment.²⁸¹ However, the law requires secondary treatment, no less and no more, and that has

²⁷¹ See Dumanoski, *supra* note 219, at 15.

²⁷² *Id.*

²⁷³ Hecht, *supra* note 7, at 36. "Red tide is a bloom of plankton that at times can actually turn sea water red. The plankton produce a toxin that accumulates in marine animals that eat large quantities of plankton, especially filter feeders such as clams and mussels." James Franklin, *Red Tide On Georges Bank Raises Fears*, BOSTON GLOBE, Apr. 21, 1991 (Nat'l/Foreign), at 29.

²⁷⁴ Hecht, *supra* note 7, at 36. "The red-tide toxin . . . causes tingling, numbness, paralysis of the extremities and, in extreme cases, respiratory failure." Franklin, *supra* note 273, at 29.

²⁷⁵ See Franklin, *supra* note 273, at 29.

²⁷⁶ See Dumanoski, *supra* note 219, at 15. According to Robert Howarth, a Cornell University ecologist, "[t]here are cases where secondary treatment may be nowhere near enough. Boston Harbor would be a good example of that." *Id.*

²⁷⁷ Hecht, *supra* note 7, at 36.

²⁷⁸ *Id.*

²⁷⁹ See *id.*

²⁸⁰ *Id.*

²⁸¹ See *supra* notes 215-54 and accompanying text.

been the deciding factor in the debate over how much treatment is enough.²⁸² Congress mandated secondary treatment in the Clean Water Act, and regardless of whether or not secondary treatment is the most effective or cost efficient, the court and Judge Mazzone will require that Boston Harbor receive secondary treatment.²⁸³

2. Where to Discharge the Effluent?

Many of the concerns about how much treatment the effluent would receive stemmed from initial concerns over where the effluent was to be discharged into Boston Harbor.²⁸⁴ The court-ordered cleanup calls for a new outfall pipe that will discharge the effluent nine and one-half miles out into Boston Harbor.²⁸⁵ While this is extremely advantageous to the quality of the water in the Inner Harbor, concerns have been raised over what effects this outfall might have on the waters surrounding the discharge area and extending into Massachusetts Bay.²⁸⁶

The new outfall pipe will originate approximately 430 feet directly below Deer Island and extend nine and one-half miles out into Boston Harbor.²⁸⁷ It will be approximately twenty-four feet in diameter and, upon completion, it will be the longest, non-vehicular tunnel in the United States.²⁸⁸ At the end of the tunnel, fifty-five "riser pipes" will bridge the gap between the tunnel and the sea floor.²⁸⁹ These riser pipes will extend along the last 6,600 feet of the outfall tunnel and diffuse the discharge of effluent into the Harbor.²⁹⁰ Each riser pipe will be fitted with a special cap from which eight smaller pipes will extend

²⁸² See Dumanoski, *supra* note 219, at 15. "Keough said the EPA thinks it is important to maintain secondary treatment as a minimum requirement. He added that it is still the law and 'I don't think Congress is going to be amenable to any change in the secondary requirement.'" *Id.*

²⁸³ See *id.*

²⁸⁴ See *infra* notes 294-329 and accompanying text.

²⁸⁵ Ronald Rosenberg, *For Harbor Tunnel Drillers, It's Down and Out; It's Also Rock Around The Clock, As They Race To Finish 9.5 Mile Sewage Conduit Under Sea Floor*, BOSTON GLOBE, Mar. 25, 1991 (Sci. & Tech.), at 29.

²⁸⁶ See Jeff McLaughlin, *Scientists Fear Sewage Outfall's Effects On Bays*, BOSTON GLOBE, June 9, 1991 (Metro/Region), at 54.

²⁸⁷ Rosenberg, *supra* note 285, at 29. The tunnel is being dug by a 300-foot-long boring machine designed to cut its way through an average of 100 feet a day of bedrock approximately 250 feet below the ocean floor. *Id.* When the tunnel is complete, "most of the boring machine, its useful life over, will be encased in concrete and abandoned" at the end of the outfall. *Id.*

²⁸⁸ *Id.* That is almost the same diameter as the Callahan Tunnel, which carries two lanes of traffic linking Boston to Logan Airport on the other side of the Harbor. *Id.*

²⁸⁹ Rosenberg, *supra* note 285, at 29.

²⁹⁰ *Id.* "The risers will be sealed until the tunnel is ready to use; then a remote-controlled robot and diver will open the nozzles." *Id.*

four to eight feet in order to further diffuse the effluent as it is discharged into the ocean.²⁹¹ When completed, tentatively by 1995, this outfall pipe will carry approximately 500 mgd of effluent into the Harbor and will have an emergency capacity of up to 1.2 billion gallons per day.²⁹² Such a substantial volume of effluent being discharged into Boston Harbor on a daily basis has raised considerable concerns over its potential effects on Massachusetts Bay and Stellwagen Bank to the south.²⁹³

a. *Effects on Massachusetts Bay*

Initial opposition to the outfall came from South Shore and Cape Cod residents.²⁹⁴ These opponents raised concerns as to whether Boston was simply shifting its pollution problem onto Massachusetts Bay by discharging the effluent into the outer currents of the Harbor, which would carry Boston's wastes to the south.²⁹⁵ Their challenge to the outfall centered on the belief that the effluent, carried south by the currents, would foul South Shore and Cape Cod waters and beaches.²⁹⁶ Opponents further claimed that the red tide and eutrophication issues surrounding the treatment of the effluent would also affect the waters of Massachusetts Bay as excess nutrients were carried through it by the currents.²⁹⁷ EPA and the MWRA studied the effects of the outfall in 1988 and again in 1992, the latter because of pressure from opponents to the outfall.²⁹⁸ In both cases, the studies found that the outfall would have only minimal, if any, effects on Massachusetts Bay.²⁹⁹ Officials claim that the sewage which has been discharged into Boston Harbor has always been carried by the currents into Massachusetts Bay after having been flushed out of the

²⁹¹ *Id.* "To reduce the risk that ships or fishing trawlers will snag their anchors or nets on the diffuser caps, all the parts are rounded. The hard plastic cap domes were designed to withstand the force of an anchor." *Id.*

²⁹² Jeff McLaughlin, *Cape Fights Plan To Pipe Effluent Into Mass. Bay*, BOSTON GLOBE, Aug. 18, 1991 (Metro/Region), at 39.

²⁹³ See McLaughlin, *supra* note 286, at 54; McLaughlin, *supra* note 292, at 39.

²⁹⁴ McLaughlin, *supra* note 292, at 39.

²⁹⁵ Franklin, *supra* note 273, at 29. Sheila Lynch, president of Save the Harbor—Save the Bay, an environmental advocacy group opposed to the outfall, stated that "[t]unnels do not solve pollution problems. They only divert pollution problems. We should not clean up Boston Harbor only to find our grandchildren will have to clean up Massachusetts Bay . . . in the 21st century." *Id.* See also McLaughlin, *supra* note 292 at 39.

²⁹⁶ McLaughlin, *supra* note 292, at 39.

²⁹⁷ See *id.*

²⁹⁸ See Ross Gelbspan, *Outfall Pipe Needs No 2d Look*, BOSTON GLOBE, May 28, 1992 (Metro/Region), at 24.

²⁹⁹ *Id.*

Harbor by the tides.³⁰⁰ They also maintain that the quality of the waters in Massachusetts Bay may even improve when the new outfall begins operations.³⁰¹ Since the effluent that will be discharged through the new outfall will be receiving more effective and substantial treatment than that which has been discharged closer to shore in the past, and will also be diluted much more quickly in the deeper waters, pollution levels in Massachusetts Bay may thus even decrease slightly.³⁰² Therefore, for the most part, opposition on the grounds that the outfall will adversely affect Massachusetts Bay has not substantially threatened the cleanup of Boston Harbor.³⁰³

Environmentalists, however, have also questioned what effects the outfall might have on Stellwagen Bank, a feeding ground for a number of endangered species, and these concerns proved to be more substantial, eventually finding their way into court in *Bays' Legal Fund v. Browner*.³⁰⁴

b. *Effects on Stellwagen Bank*

Stellwagen Bank is located approximately sixteen miles southeast of the proposed end of the outfall pipe.³⁰⁵ On June 26, 1993, Stellwagen Bank was dedicated by the National Oceanic and Atmospheric Administration as a national marine sanctuary, one of only twelve in the nation and the only one in New England.³⁰⁶ This was in part due to Stellwagen Bank's importance as a migratory feeding ground for a number of endangered species.³⁰⁷ These endangered species include the Humpback, Fin, Sei, and Blue Whales, and the Kemp's Ridley, Leatherback, and Hawksbill Turtles.³⁰⁸ However, the most threatened

³⁰⁰ Dianne Dumanoski, *Foes of MWRA Outfall See More Bay Pollution*, BOSTON GLOBE, Jan. 6, 1992 (Metro/Region), at 15.

³⁰¹ Scott Allen, *MWRA Pipe Won't Harm Marine Life, Study Says; Ecological Questions Remain For Outfall Tunnel Opponents*, BOSTON GLOBE, Oct. 22, 1992 (Metro/Region), at 1.

³⁰² *Id.*

³⁰³ *See id.*

³⁰⁴ *Bays' Legal Fund v. Browner*, 828 F. Supp. 102 (D. Mass. 1993).

³⁰⁵ Jeff McLaughlin, *U.S. Studies Whether Whales Endangered By Harbor Pipe*, BOSTON GLOBE, Apr. 7, 1992 (Metro/Region), at 21.

³⁰⁶ *Stellwagen Sanctuary*, BOSTON GLOBE, June 26, 1993 (Ed.), at 16. "With sanctuary status comes protection from several dangers, including sand and gravel mining, crackpot schemes for floating resorts and the unwise disposal of pollutants." *Id.*

³⁰⁷ *Id.* Stellwagen Bank also supports more than a dozen species of seabirds and is a haven for sport and commercial fishing and whale-watching. Combined, the whale-watching and commercial fishing industries make over \$20 million a year exploiting the resources of Stellwagen Bank. *Id.*

³⁰⁸ *Bays' Legal Fund*, 828 F. Supp. at 105.

and thus most important of the endangered species inhabiting the waters around Stellwagen Bank is the Right Whale.³⁰⁹

The Right Whale was hunted for years and is now considered the most endangered of the large whales.³¹⁰ Currently, no more than 350 Right Whales are believed to be living in the world.³¹¹ Stellwagen Bank is known to be one of only five habitats for the Right Whale between the Bay of Fundi and Florida, and each year forty to fifty Right Whales are known to feed in the waters near Stellwagen Bank.³¹² These whales feed for up to fifteen hours a day on the microscopic plankton in the ocean's waters.³¹³ Hence, any effects that the outfall could potentially have on the whales or the plankton on which they feed is of vital importance to their continued existence.³¹⁴ As a result, the Right Whale became the focus of an all-out attack on the outfall project.³¹⁵

In *Bays' Legal Fund v. Browner*, Bays' Legal Fund and Greenworld, two environmental advocacy groups opposed to the outfall, challenged EPA's approval of the construction of the outfall.³¹⁶ The plaintiffs sought to halt construction of the outfall by claiming that EPA had violated the Endangered Species Act (ESA), as well as the NEPA and the Marine Mammal Protection Act, when it approved the construction of the outfall.³¹⁷ *Bays' Legal Fund v. Browner* was tried in Federal District Court by Judge Mazzone and construction of the outfall continued as the case was being heard.³¹⁸

After noting that "the importance of this litigation and our nation's laws to protect endangered species cannot be overstated,"³¹⁹ Judge Mazzone ruled in favor of EPA, finding that the plaintiffs could not prevail on the merits of any of their claims.³²⁰ To the plaintiffs' claims

³⁰⁹ *The Right Whale, The Right Protection*, BOSTON GLOBE, Apr. 20, 1992 (Ed.), at 12.

³¹⁰ McLaughlin, *supra* note 305, at 21. "For early New Englanders, the right whale to hunt was the one that floated on the surface when killed, rather than sinking beneath the waves, meaning that it could be hunted from shore and its carcass towed ashore—and giving the whale its name." *The Right Whale, The Right Protection*, *supra* note 309, at 12.

³¹¹ McLaughlin, *supra* note 305, at 21.

³¹² *Id.*

³¹³ *See id.*

³¹⁴ *See id.*

³¹⁵ Dianne Dumanoski, *Suit Aims To Halt Tunnel, Protect Whales In Bay*, BOSTON GLOBE, Mar. 20, 1993 (Metro/Region), at 35. "Vowing to make the Northern right whale 'the spotted owl of the East Coast,' a whale protection advocate . . . filed suit in federal court to halt the construction of the MWRA's outfall tunnel into Massachusetts Bay." *Id.*

³¹⁶ *Bays' Legal Fund v. Browner*, 828 F. Supp. 102, 104-05 (D. Mass. 1993).

³¹⁷ *Id.* at 108-14.

³¹⁸ *Id.* at 104.

³¹⁹ *Id.* at 105.

³²⁰ *Id.* at 114.

that EPA failed to comply with the necessary procedural requirements for environmental review pursuant to the ESA, Judge Mazzone responded that the claim “strikes this Court as an exaltation of form over substance.”³²¹ As to the substantive claims, Judge Mazzone held that the plaintiffs had failed to prove that the outfall was *likely* to have an adverse effect on the endangered species in and around Stellwagen Bank, and that the plaintiffs had also failed to show that EPA’s findings had been arbitrary or capricious.³²²

Critics of the outfall immediately attacked this decision.³²³ Opponents questioned the objectivity of Judge Mazzone since he had been the judge that initially approved the outfall as part of the cleanup.³²⁴ However, more important were questions as to the continued usefulness of federal endangered species protection laws.

EPA had concluded in their 1993 Biological Assessment (BA) that “the discharge of nutrients from the new outfall system *is not likely to cause any significant changes* to the food chain of the endangered species in the bays.”³²⁵ In that same BA, EPA also concluded that the endangered species were “*not likely to be adversely affected*” by the toxins that the outfall would discharge into the Harbor.³²⁶ Following EPA’s lead, in finding for EPA, Judge Mazzone noted that the “two biological studies by the EPA have demonstrated that the outfall tunnel project is *unlikely to have a significant effect on any of the endangered species in the bays.*”³²⁷ The decision of EPA, and thus ultimately that of the court, rested on the “likelihood” of the potential risk to the Right Whale.³²⁸

³²¹ *Id.* at 111. Plaintiffs argued that EPA had failed to conduct a Biological Assessment (BA) of the outfall project prior to any construction contracts being made pursuant to section 7(c) of the ESA. *Id.* Judge Mazzone found that, when viewed in conjunction with one another, EPA’s Draft Supplemental Environmental Impact Statement (DSEIS) and its Final Supplemental Environmental Impact Statement (FSEIS) constituted a Biological Assessment that satisfied section 7(c) of the ESA. *Id.*

³²² *Id.* at 114. Although the court-run cleanup seems to constitute a formal adjudicatory process, the court’s review here was limited to a review of the SEIS and the 1993 BA, which the court deemed to constitute informal agency adjudication. Thus, the court applied the arbitrary and capricious standard of review articulated in *Camp v. Pitts*, 411 U.S. 138, 142 (1973) (“arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law”). *See id.* at 107.

³²³ *See* Scott Allen, *Judge Gives Go-Ahead To Sewage Pipe; Tunnel To Aid Harbor Cleanup*, BOSTON GLOBE, July 27, 1993 (Metro/Region), at 1.

³²⁴ *See id.* “I’m disgusted that somebody with so much power would abuse it like that,” said Mary Loebig, co-director of Stop the Outfall Pipe. “We have a judge who is personally invested in a decision that was made in 1988.” *Id.*

³²⁵ *Bays’ Legal Fund*, 828 F. Supp. at 108 (emphasis added).

³²⁶ *Id.* at 109 (emphasis added).

³²⁷ *Id.* at 113 (emphasis added).

³²⁸ *See id.* at 108–14.

Opponents claimed that the "likelihood" of harm to the bay's endangered species could not be established because of lack of evidence on the potential effects.³²⁹ Thus, neither side could clearly say that the potential for adverse effects was or was not likely.³³⁰ Based on this, opponents asserted that such a lack of evidence should support the halting, rather than the continuation, of the project until further data could be collected and researched.³³¹ However, the ESA calls for a different result, as noted by Judge Mazzone in his opinion:

If and when there is concrete, scientific evidence that substantiates the likelihood of a threat, it will be appropriate to reconsider the wisdom, not to mention the legality, of the outfall tunnel as a means of effluent discharge. Until then, however, the ESA does not require the cessation of activities³³²

Of course, opponents point out that by the time such evidence might be compiled, the damage already may have occurred.³³³

Therefore, the outfall tunneling is continuing, despite the unknown effects the discharge of effluent will have on Stellwagen Bank, and to a lesser degree, on Massachusetts Bay. It is possible, however, that these concerns will be revisited as the project proceeds. Recent calls for reductions in the cost of the cleanup have led to proposed cutbacks in the clean-up project.³³⁴ This could cause a reduction in the amount of treatment of the effluent and therefore increase the potential for harm to the endangered species of Stellwagen Bank.³³⁵ If this does indeed occur, the issue may be played out again in court.

C. *Fixing the Combined Sewer System*

Addressing the problem of the combined sewer overflows (CSOs) is just as important to the Boston Harbor Cleanup as sufficient effluent treatment and the elimination of sludge discharges.³³⁶ When

³²⁹ Allen, *supra* note 323, at 1.

³³⁰ See *Bays' Legal Fund*, 828 F. Supp. at 108-09.

³³¹ See *id.*

³³² *Id.* at 109.

³³³ *The Right Whale, The Right Protection*, *supra* note 309, at 12.

But the right whale is not just an overgrown (at 60 tons) snail darter standing in the way of progress; it is an endangered species highly symbolic of man's deliberate squandering of a common natural heritage. If the right whale cannot be protected, the chances for survival of other threatened creatures are not good.

Id.

³³⁴ See Scott Lehigh, *MWRA Asks For Harbor—Cleanup Cutbacks, Seeks Court OK On Steps To Save \$ 850M-plus*, BOSTON GLOBE, June 17, 1993 (Metro/Region), at 33.

³³⁵ See *id.*

³³⁶ Reinert, *supra* note 126, at 1.

the capacity of these combined sewers is exceeded, raw sewage is discharged through approximately eighty-six overflow outfalls.³³⁷ The result is similar to that which occurs when sewage is discharged from Moon Island or the Nut Island bypasses.³³⁸ Essentially, raw, untreated sewage is discharged directly into the waters of Boston Harbor.³³⁹ These CSOs have been found to be the direct cause of up to fifty or more beach closings a year in the Greater Boston area.³⁴⁰

The major difficulty in rectifying the CSO problem is that most of the CSOs were built prior to 1910 and are therefore all buried under the ever-expanding city of Boston.³⁴¹ As a result, direct repairs to the system that could increase its capacity to transport sewage to the treatment plants were deemed not to be feasible based on the logistics and expense of digging up the city.³⁴² However, it was clear that no matter how the MWRA went about fixing the CSO problem, it would be an expensive component of the cleanup.³⁴³

Initial CSO clean-up efforts centered on the construction of automated combined sewer overflow screening plants.³⁴⁴ These plants are designed to screen out most floating material in the sewage and then treat the remaining sewage with chlorine disinfectant to kill most of the bacteria before it is discharged into Boston Harbor.³⁴⁵ However, these plants were expensive and did not even provide primary treatment, thus the costs of these plants was not commensurate with the benefits derived therefrom, so the MWRA sought other options for handling the CSO problem.³⁴⁶

Eventually, the MWRA approved a plan that called for the construction of an underground tunnel storage area.³⁴⁷ Specifically, the proposal calls for a sixteen mile long, twenty-five foot in diameter tunnel approximately 400 feet underground.³⁴⁸ Twenty miles of surface consolidation conduits would join the tunnel with the combined

³³⁷ Dumanoski, *supra* note 101, at 26.

³³⁸ See Doneski, *supra* note 3, at 572-73.

³³⁹ See *id.*

³⁴⁰ Dumanoski, *supra* note 101, at 26.

³⁴¹ Doneski, *supra* note 3, at 572.

³⁴² Hecht, *supra* note 7, at 34.

³⁴³ See Dumanoski, *supra* note 101, at 26.

³⁴⁴ *Plants Cut Boston Overflows*, ENGINEERING NEWS-REC., Mar. 30, 1989, at 16.

³⁴⁵ *Id.*

³⁴⁶ See *id.* The MWRA only planned the construction of two such plants prior to the decision to seek alternatives. *Id.* The first plant cost approximately \$4.8 million and the second, which had twice the capacity, cost around \$8.2 million. *Id.* The first plant went on line in 1989. *Id.*

³⁴⁷ *Boston CSO Plan Approved*, ENGINEERING NEWS-REC., Oct. 4, 1990, at 23.

³⁴⁸ *Id.*

sewers.³⁴⁹ When the capacity of the combined sewers is exceeded, the overflow will be diverted to the storage tunnel where it will be held until it can be pumped to Deer Island for treatment.³⁵⁰ The tunnel would have the capacity to store up to 350 million gallons of sewage and would be equipped with two pump stations that could each pump up to 150 mgd to Deer Island.³⁵¹

While there has been general agreement that this is the most effective and cost efficient means of handling the CSO dilemma, the major stumbling block for the storage tunnel has been when and how to pay for the project.³⁵² The cost of the storage tunnel is estimated to be approximately \$1.2 billion.³⁵³ Paying for this on top of the \$6.1 billion price tag of the rest of the cleanup has been restrictive.³⁵⁴ As a result, the storage tunnel has not moved past the planning stages and is now facing potential cutbacks.³⁵⁵

The MWRA has suggested to EPA and Judge Mazzone that, by reducing the size and configuration of the storage tunnel project, the MWRA could reduce the overall cost of the cleanup by as much as \$700 million.³⁵⁶ While no alternatives have yet been proposed, the MWRA and EPA did agree to make attempts to come up with a new plan addressing the CSO problem, and hopes are that this plan will be completed by the end of 1994.³⁵⁷ Of course, any such cutback would require court approval.

While the CSO project has taken a back seat to the other major components of the Harbor cleanup, it remains an essential element in the effective cleanup of the Harbor.³⁵⁸ As the cleanup continues to move forward, it is important that this aspect does not disappear as officials react to the angry voices of ratepayers when the cost of the cleanup finally hits their pocketbooks.³⁵⁹ Without an effective solution

³⁴⁹ *Id.*

³⁵⁰ *Id.*

³⁵¹ *Id.*

³⁵² *See id.*

³⁵³ Dumanoski, *supra* note 101, at 26.

³⁵⁴ *See id.* According to Paul Levy, former executive director of the MWRA "[t]here are financial problems with taking on a \$1.2 billion project at the same time you are already doing a \$6 billion project. There are limits to what you can collect from the financial markets and limits to what people can afford to pay." *Id.*

³⁵⁵ *See* Lehigh, *supra* note 334, at 33.

³⁵⁶ *Id.*

³⁵⁷ *Boston Harbor: EPA Favors Plan That Would Save MWRA \$, Greenwire (Clean Water)*, Aug. 6, 1993.

³⁵⁸ *See* Lehigh, *supra* note 334, at 33.

³⁵⁹ *See id.*

to the CSO dilemma, the other components of the cleanup will be undermined as thousands of gallons of raw, untreated sewage continue to pour into Boston Harbor.³⁶⁰

V. PAYING FOR THE CLEANUP OF BOSTON HARBOR

While separate challenges have been waged against certain components of the Boston Harbor Cleanup, there has been one continuous focus of opposition to the entire project: the price tag.³⁶¹ Massachusetts's failure to take advantage of federal funding for the \$6.1 billion cleanup when it was available in the 1970s has resulted in a taxpayers' nightmare, where water and sewer rates continue to escalate as the costs of the cleanup are realized.³⁶² The question is, when does the balance shift from the need for a cleanup to the needs of ratepayers not to be overborne by their water rates?

The failure of the MDC and then Governor Michael Dukakis to commence the cleanup of Boston Harbor when the 1972 amendments to the FWPCA first became law resulted in the loss of significant federal funds for the project.³⁶³ Had the cleanup been commenced in the 1970s, the federal government would have shouldered up to seventy-five percent of the cost of the cleanup.³⁶⁴ Instead, the ratepayers in the forty-three communities that are serviced by the MSS are currently facing a bill for ninety-two percent of the cleanup.³⁶⁵ This has resulted in a backlash of opposition against the expensive cleanup as ratepayers have seen their water rates increase almost exponentially.³⁶⁶

Since 1985, water rates for the communities serviced by the MSS have risen over 300%.³⁶⁷ In 1993, the average household's water bill was approximately \$575.³⁶⁸ By the turn of the century, the average household water bill is expected to reach \$1,200 absent increases in federal and state funding.³⁶⁹ In response, ratepayers have begun to

³⁶⁰ See Doneski, *supra* note 3, at 572-73.

³⁶¹ See, e.g., Peter Howe, 'A Ratepayer's Nightmare', BOSTON GLOBE, July 16, 1993 (Metro/Region), at 19; *Boston Harbor: Ratepayers Stage Another Tea Party*, *supra* note 36.

³⁶² See *Boston Harbor: Ratepayers Stage Another Tea Party*, *supra* note 36.

³⁶³ See Hecht, *supra* note 7, at 33.

³⁶⁴ *Id.*; Tye, *supra* note 35, at 25.

³⁶⁵ *Boston Harbor: Ratepayers Stage Another Tea Party*, *supra* note 36.

³⁶⁶ See Faith Sousa Schaefer, *Boston's Big Pipe*, SEA FRONTIERS, July, 1993, at 6.

³⁶⁷ Scott Allen, *Reduced Water Rate Hike Faces Board Vote*, BOSTON GLOBE, June 29, 1993 (Metro/Region), at 27.

³⁶⁸ *Id.*

³⁶⁹ *Id.*

challenge their bills, most poignantly by staging a modern-day Boston Tea Party during which over four hundred ratepayers threw their sewer and water bills into Boston Harbor.³⁷⁰ Ratepayer revolts have had two effects: first, they have evoked political participation in attempts to acquire additional federal and state funds, and second, they have resulted in proposed cutbacks to the cleanup.³⁷¹

The issue of funding for the Boston Harbor Cleanup has been a political "hot potato" since Vice President George Bush attacked presidential candidate Michael Dukakis over the condition of the Harbor during the 1988 presidential campaign.³⁷² Bush later, as President, did not include money in his budget to help clean up the Harbor.³⁷³ Neither Congress nor the Massachusetts Legislature has been particularly willing to help fund the cleanup.³⁷⁴ Instead, the little governmental funding which the MWRA has received has come only after fierce lobbying by the MWRA and the Massachusetts representatives in Washington.³⁷⁵ While the MWRA has managed to get approximately \$500 million from the federal government in the past five years, it has always been "on a check-by-check basis."³⁷⁶

The Massachusetts Legislature has also been little help to the MWRA.³⁷⁷ For the fiscal year 1994, state legislators only approved \$18 million for the MWRA.³⁷⁸ In doing so, communities not serviced by the MWRA have effectively turned their back on the clean-up effort.³⁷⁹ Instead of helping to fund the cleanup, Massachusetts lawmakers have taken the opposite route and have fought for cutbacks in the cleanup.³⁸⁰

³⁷⁰ *Boston Harbor: Ratepayers Stage Another Tea Party*, *supra* note 36.

³⁷¹ See, e.g., *Judge Asked To Approve Cut In Boston Harbor Spending*, *supra* note 62; James Franklin, *Environmentalists Assail Plan To Cut Harbor Cleanup*, BOSTON GLOBE, Mar. 23, 1991 (Metro/Region), at 40.

³⁷² Tye, *supra* note 35, at 25.

³⁷³ *Id.*

³⁷⁴ See Dianne Dumanoski, *Judge Voices Concerns Over Harbor Cleanup*, BOSTON GLOBE, Jan. 3, 1992 (Metro/Region), at 15.

³⁷⁵ See Scott Allen, *California's Plan Could Benefit MWRA*, BOSTON GLOBE, Nov. 9, 1993 (Metro/Region), at 21. Senators Edward M. Kennedy and John F. Kerry have been most effective in obtaining federal funding for the MWRA. See Scott Allen, *Kennedy, Kerry Say Boston May Get \$100 Million For Harbor Cleanup*, BOSTON GLOBE, June 22, 1993 (Nat'l/Foreign), at 10.

³⁷⁶ Allen, *supra* note 375, at 21.

³⁷⁷ See Michael Grunwald, *Little Political Unity On MWRA Rate Relief*, BOSTON GLOBE, June 5, 1993 (Metro/Region), at 15.

³⁷⁸ *Id.*

³⁷⁹ See *id.*

³⁸⁰ See *id.*

At the center of the conflict over the sewer rates are the secondary treatment and combined sewer overflow portions of the cleanup.³⁸¹ Massachusetts state officials, including Governor William Weld, have called for scaling back both projects.³⁸² However, environmentalists warn that such cutbacks could result in the continued illegal pollution of Boston Harbor.³⁸³ These proposed cutbacks cause outfall opponents to worry.³⁸⁴ If the secondary treatment project is scaled back, there may be a greater risk to Massachusetts Bay and Stellwagen Bank.³⁸⁵

While the more environmentally sound approach to the concerns of the ratepayers may be to have Congress and the Commonwealth of Massachusetts contribute more to the cleanup, it is more likely that lawmakers will continue to support the more politically advantageous position that the cleanup should be scaled down.³⁸⁶ Of course, any such scale-back would have to be approved by Judge Mazzone, who is on the record as opposing such measures.³⁸⁷ He has noted that "[w]e've been underpaying for generations. We're being called to pay for those years of neglect and delay. That's unfair in a lot of ways, but the goal is so important. And future generations will benefit from our paying now."³⁸⁸

In response to ratepayers' concerns over the cost of the cleanup, Governor Weld recently put his support behind a proposal that would give him control over the MWRA.³⁸⁹ This pleased ratepayers but concerned those involved in the cleanup of the Harbor.³⁹⁰ Weld is

On Beacon Hill, there has been a veritable flurry of solutions de jour. . . . There have been legislative proposals to abolish the MWRA and to place it under gubernatorial control. . . . The Weld administration and the Legislature have unveiled separate plans to scale back the \$5.7 billion Boston Harbor cleanup in the name of rate relief. . . .

Id.

³⁸¹ See *Massachusetts: Weld Wades Into The Water Rate Fray*, Greenwire (State Reports), June 7, 1993.

³⁸² *Id.*

³⁸³ Lehigh, *supra* note 334, at 33.

³⁸⁴ See *id.*

³⁸⁵ See *id.*

³⁸⁶ See *id.*

³⁸⁷ Dumanoski, *supra* note 374, at 15. Judge Mazzone has stated, "[i]f [legislators] think the solution is to freeze rates and save their constituents money, then the project will come to a stop. I don't think anyone wants that." *Id.*

³⁸⁸ *Id.*

³⁸⁹ Don Aucoin & Peter Howe, *Weld Turns Willing To Snap Leash On MWRA*, BOSTON GLOBE, June 30, 1993 (Metro/Region), at 21. "People might say, 'If he wants that hot potato, let's let him have it,' Weld said, adding with evident relish: 'It would then be squarely in my lap, that's for sure.'" *Id.*

³⁹⁰ See *id.*

seeking control in order to be able to reduce rates.³⁹¹ He is not doing this to make sure that the cleanup is successful.³⁹² One of the most important reasons for the creation of the MWRA was to create an agency free from political influence so that it could effectively finance the cleanup.³⁹³ A takeover by the governor would seriously threaten the MWRA's ability to remain separated from the political wars that have been raging over water and sewer rates.³⁹⁴ If this occurs, the cleanup of Boston Harbor could be in serious peril.

VI. EFFECT OF A COURT-RUN CLEANUP OF BOSTON HARBOR

A. *When the Court is in Charge*

Evaluating the potential for the success of the Boston Harbor Cleanup in 1985, one commentator noted that "cleaning up Boston Harbor demands an atmosphere of cooperation and commitment" amongst the MWRA, EPA, and the communities serviced by the MSS.³⁹⁵ Instead of cooperation and commitment, the Boston Harbor Cleanup has had to overcome political and economic opposition and community self-interest. In overcoming these barriers to the cleanup of Boston Harbor, some credit must go both to the MWRA and EPA. However, absent the role of the court and Judge Mazzone in the clean-up process, it is unlikely that the progress that has been made since 1985 would have been realized as effectively or efficiently. The history of the pollution problem in Boston Harbor and the recent clean-up attempt have demonstrated both the strengths and weaknesses of court involvement in a clean-up project of such magnitude and have shown that effective administration of such a project requires a neutral and powerful force such as Judge Mazzone.³⁹⁶

The Boston Harbor Cleanup has demonstrated that the primary strength of court involvement in this type of situation is its ability to serve as a check on both the executive and legislative branches of the government. Acting in precisely the manner that the court was designed to operate in the Constitution, it has been able to remain insulated from the political pressures that hindered an effective

³⁹¹ See *id.*

³⁹² See *id.*

³⁹³ See Doneski, *supra* note 3, at 614. To separate the MWRA from the political influences associated with agency appropriation, the MWRA was given the power to issue its own bonds and set sewer rates sufficient to meet all operational and cleanup costs. *Id.*

³⁹⁴ See Aucoin & Howe, *supra* note 389, at 21.

³⁹⁵ Doneski, *supra* note 3, at 625.

³⁹⁶ See Haar, *supra* note 4, at 642.

cleanup administered by the executive and legislature.³⁹⁷ As a result, the court has been able to ensure that the cleanup is a legal, if not "political," success.

The Boston Harbor Cleanup is a prime example of a situation where political inertia resulted in the continued environmental devastation of a vital natural resource, irrespective of violations of state and federal environmental laws.³⁹⁸ Even after the courts ordered compliance with applicable environmental statutes and the cleanup of Boston Harbor, the Massachusetts Legislature was unwilling to be responsible for the difficult decisions that a successful cleanup required.³⁹⁹ The unwillingness of MSS communities to shoulder the burden of the cleanup—coupled with a political climate that, at times, may have lessened the effectiveness of the MWRA and EPA—further exasperated the difficulty of producing an effective cleanup.⁴⁰⁰

The inability of any group to bear the burden of making the difficult and unpopular decisions required to clean up Boston Harbor made a court-run cleanup necessary.⁴⁰¹ And in this case, the court has delivered. Judge Mazzone has been able to use the power of the court to facilitate the cleanup by making some of the more politically unpleasant decisions and, in the alternative, providing legislators with excuses for backing positions that would otherwise be politically crippling.

Illustrating the court's ability to overcome this political deadlock was Judge Mazzone's use of the new sewer hookup ban to pressure the Massachusetts Legislature into transferring the land for the Walpole site from the Department of Corrections to the MWRA.⁴⁰² By refusing to make the ultimate decision himself, but providing lawmakers with an overriding reason to transfer the land, Judge Mazzone effectively forced those responsible for the decision to act.⁴⁰³ Rather than allowing lawmakers to rely on their ability to avoid the problems associated with the Boston Harbor Cleanup, as they had consistently done in the past, Judge Mazzone forced them to take action to find an alternative site.⁴⁰⁴ In doing so, the court served as a check on both the executive and legislative branches and made sure that those who

³⁹⁷ U.S. CONST. art. III.

³⁹⁸ See *supra* notes 22–61 and accompanying text.

³⁹⁹ See *supra* notes 187–92 and accompanying text.

⁴⁰⁰ See *supra* notes 366–75 and accompanying text.

⁴⁰¹ See Haar, *supra* note 4, at 642.

⁴⁰² See Franklin, *supra* note 193, at 1.

⁴⁰³ See *id.*

⁴⁰⁴ See *id.*

were responsible for the difficult clean-up decisions would not be able to hide from them.

Furthermore, by ensuring that the "legal" option is the required course of action, the court sidesteps issues that could unnecessarily delay the cleanup.⁴⁰⁵ The court's involvement has enabled the MWRA and EPA to avoid continuous haggling with outside opponents who favor courses of action that have not been adopted by these agencies.⁴⁰⁶ The question of the effectiveness and cost efficiency of secondary treatment is just one example. By enforcing the legal standard of secondary treatment set forth in the Clean Water Act, the court effectively shut the door to arguments that favored an increase or decrease in the amount of treatment the sewage receives and in doing so freed the agencies from burdensome evaluations and explanations regarding what level of treatment is acceptable.⁴⁰⁷ In this manner, the court was able to keep the cleanup of Boston Harbor on schedule.

However, the necessity of the court to follow the legal rather than political course for the cleanup also contributed to the weakness of a court-run cleanup. Since the court's decisions are based on the law and not always on the political and economic realities that surround the decision, sometimes the goals of the court, and thus the cleanup, may run contrary to other societal interests such as not having to choose between paying your water and sewer bills or eating. As a result, at times the court can seem inflexible and/or short-sighted. The court's decisions to push forward with its compliance schedule so that the cleanup stays on schedule may be one such example of the inflexibility of the court's role in the cleanup.

In addition, those opposed to the court's involvement in the cleanup often question the objectivity of a particular judge who is intimately involved in every aspect of the project.⁴⁰⁸ It may be true that there is some risk involved in such a situation, where the judge has an "investment" in the successful outcome of a project and is not politically accountable. However, the Boston Harbor Cleanup has clearly shown that it is just those types of decisions—where the good of the project may impose a burden on a segment of the public which it deems unacceptable—that are impossible to make without insulation from "political accountability."

⁴⁰⁵ See *supra* notes 221–83 and accompanying text.

⁴⁰⁶ See *supra* notes 221–83 and accompanying text.

⁴⁰⁷ See *supra* notes 221–83 and accompanying text.

⁴⁰⁸ See Allen, *supra* note 323, at 1.

Nevertheless, irrespective of any weakness inherent in the court's role as overseer of the cleanup, Judge Mazzone has been able to do what generations of legislators and executive officials have failed to do. With the power of the court, Judge Mazzone has turned the idea of cleaning up Boston Harbor from fiction into fact. Because of this, the Boston Harbor Cleanup illustrates how the judiciary may be employed to solve environmental problems that the executive and legislative branches of our government are unwilling or afraid to face.⁴⁰⁹

Originally, it was hoped that the lawmakers, the executive agencies, and the communities serviced by the MSS could come together with one common objective—a clean Boston Harbor.⁴¹⁰ However, the social, political, and economic realities of the clean-up project made that impossible.⁴¹¹ So the court and Judge Mazzone “forced” these groups to do what they otherwise could not. The only question now is whether or not Judge Mazzone can bring this ugly chapter in Massachusetts history to a successful end.

B. *The Future of Boston Harbor*

The cleanup of Boston Harbor is still far from completion. The new primary treatment plant on Deer Island will not be operational until 1995, the new outfall tunnel will not be completed until 1999, and the secondary treatment facility will not come on line until after the turn of the century.⁴¹² Moreover, a solution for the combined sewer outfall problem is yet to be agreed upon.⁴¹³ This means that there are still more difficult questions to be dealt with before the cleanup of Boston Harbor is complete. The role of the court in answering these questions will be as vital to the cleanup as has been its involvement up until this point.

While most Massachusetts citizens consider the cleanup of Boston Harbor to be both an important environmental and economic project, the economic reality of the 1990s has many groups calling for cutbacks in the cleanup.⁴¹⁴ As the political pressure has mounted, Governor William Weld, local mayors, the MWRA, and even EPA have to vary-

⁴⁰⁹ See Haar, *supra* note 4, at 642.

⁴¹⁰ See Doneski, *supra* note 3, at 625.

⁴¹¹ See Haar, *supra* note 4, at 642.

⁴¹² See, e.g., Hecht, *supra* note 7, at 34–35.

⁴¹³ See *Boston CSO Plan Approved*, *supra* note 347, at 23.

⁴¹⁴ See, e.g., Indira A.R. Lakshmanan, *Poll Finds Support For Harbor Cleanup*, BOSTON GLOBE, Nov. 27, 1993 (Metro/Region), at 16; Lehigh, *supra* note 334, at 33.

ing degrees suggested cutbacks in clean-up projects.⁴¹⁵ These proposed cutbacks are the direct result of increasing political pressure from ratepayers who are facing ever increasing water and sewer bills.⁴¹⁶

However, someone has to pay for the cleanup, and it has to be done now. The process of cleaning up Boston Harbor has progressed too far to be undermined now that its cost is finally being felt by the average citizen. While the politically advantageous approach to the financial problems that the cleanup presents is to seek cutbacks in the project, this is clearly not the most environmentally responsible course of action. Therefore, it will be essential in the coming months and years that the court not allow politically motivated cutbacks to circumvent the primary objectives of the cleanup. Rather than allowing lawmakers and the MWRA to take the most politically advantageous and least difficult route of cutbacks, Judge Mazzone may need to advance the objectives of the cleanup by pressuring these groups to secure additional funding for the cleanup instead.

It is clear that as the economic impact of the Boston Harbor Cleanup bears down on the citizens of Massachusetts, challenges to cleanup will continue to appear. However, if Judge Mazzone continues to keep the executive and legislative branches in check as he has done for the past nine years, the ultimate success of the cleanup should eventually be realized. At that point, the politicians can stand on their soapboxes and proclaim to their constituents that they have saved Boston Harbor. But in the final analysis, that goal will never have been reached without the oversight of the court and the long-term involvement of Judge A. David Mazzone.

VII. CONCLUSION

For almost two centuries, Massachusetts has polluted one of its most vital natural resources, Boston Harbor. Efforts to stop the pollution and to clean up Boston Harbor have had little if any success in the past, mainly due to a lack of political initiative and support. As a result, in 1985, litigation initiated by the city of Quincy, led to the establishment of the Massachusetts Water Resources Authority. This

⁴¹⁵ See, e.g., Lehigh, *supra* note 334, at 33; Dianne Dumanoski, *Mayors To Press For Scaling Down Of MWRA Sewer Project, Rate Relief*, BOSTON GLOBE, June 9, 1993 (Metro/Region), at 26; Scott Allen, *Weld Is Warned On Bid To Trim Harbor Cleanup*, BOSTON GLOBE, June 8, 1993 (Metro/Region), at 22; Scott Allen, *Official Says EPA Flexible On Cleanup Costs*, BOSTON GLOBE, May 5, 1993 (Metro/Region), at 34.

⁴¹⁶ See Lehigh, *supra* note 334, at 33.

agency was established to shoulder the Herculean task of cleaning up "America's Dirtiest Harbor."

The creation of the MWRA raised new hopes that Boston Harbor would finally be cleaned up. However, the MWRA was not able to overcome the well-rooted political lethargy of the Massachusetts political machine and therefore the Environmental Protection Agency and the Conservation Law Foundation called upon the courts to monitor the Boston Harbor Cleanup.

The court's involvement in the cleanup has broken down the traditional political, social, and economic barriers to a successful cleanup and as a result the cleanup has progressed, for the most part on schedule, for the past nine years. This is largely due to the "gun-to-the-head" rulings of Judge A. David Mazzone who has overseen the cleanup. As the cleanup continues into the next century, it will be essential to its successful completion that the court continue to counter the political deadlock and economic backlash associated with the Harbor cleanup. While cooperation and commitment between the Massachusetts Legislature, the MWRA, EPA, and the local communities would lend itself to the successful completion of the cleanup, only the continued involvement of the court will ensure that end.